THE OLD TIMER'S BULLETIN

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Published for the Old Time Wireless Operator, Historian and Collector

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OLD TIME TRANSMITTER CONTEST

JAN. 14 - 15
22 - 23
1976

Devoted to research and documentation of the history of wireless communications.

Member:
American Association of Museums
Regional Conference of Historical Agencies

ANTIQUE WIRELESS ASSOCIATION, INC.

HOLCOMB, NEW YORK 14469

Founded 1952. Chartered as a non-profit corporation by the State of New York

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NEWS and general CORRESPONDENCE, write Secretary: BRUCE KELLEY
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Membership DUES and ADDRESS CHANGE, write Treasurer: LINCOLN CUNDALL
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BACK ISSUES

Historical reference and good reading....

The following OLD TIMERS BULLETIN remain in stock. Order direct from Secretary:
Bruce Kelley
Main Street
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NEW A.W.A. EMBLEM

Pictured is the final choice for the AWA Emblem. It was a difficult decision because of the many excellent entries and the need to select one to fill several requirements.

The Committee gradually had to accept the fact that the emblem had to be flexible and at the same time simple. In addition, it had to show AWA's prime purpose: history.

As noted, the final choice is a Hertz resonator -- the FIRST receiver. The design is such that it can be used for a letterhead and a common lapel pin. Credit for design to Al Mumby, WB2MCP.

ASSOCIATION NEWS

Notes from the President's Desk

DELIVERY OF THE BULLETIN

Delivery of the Bulletin via third-class bulk-rate mail takes two to four weeks after giving it to the Post Office. For many members, this service is adequate, but others would like to have their copy delivered in less time. To accommodate these members your Board of Directors have changed the dues structure effective January 1, 1976 as follows:

Regular U.S. Membership dues with Bulletin mailed third-class as at present -- $5.00 per year
10.00 for two years

Regular U.S. Membership dues with special handling and First Class mailing -- $6.50 per year
12.00 for two years

If you desire first-class mail service on future copies of the Bulletin, please renew at the new rates indicated above. If your present membership runs less than a year and you want first class service, remit to the treasurer as follows:

Expiration date	Amount
March	$ 0.40
June	.75
September	1.15

MUSEUM FUND

The AWA Museum Fund for the establishment and operation of our Electronics Communication Museum in the Academy Building at East Bloomfield was started in April, 1973 with a gift from Clarence Tuska. Many members and friends have since contributed so that our new Museum is a reality and we have a modest endowment earning interest to help pay for operation expenses. While yearly costs are modest, we do need to increase this endowment so we will not have to invade the principal of the Fund in the coming years.

The names and locations of the more than two hundred and thirty who contributed to the Fund are now posted on a display at the Museum. These names will be on a permanent plaque in the future. If you are not one who has already taken part in perpetuating the history of radio in this way, please consider joining those who have. A donation, which is tax-deductible, would be very helpful at this time. If you have already contributed and want to donate more than you were able to before, you might review your situation at the end of 1975 and see whether you could add to your previous gift.

CHARLES BRELSFORD
President

THE MUSEUM

ACADEMY MUSEUM East Bloomfield, N.Y.

The A.W.A. Electronic Communication Museum is now closed for the season. Attendance has been beyond all expectation. Nearly 2000 from 34 states have climbed the staircase and viewed the 10,000 items on display in the several rooms.

The building has been open 50 times between May and October with attendance averaging 40 per opening --- however, there were some Wednesday evenings when only 4 or 5 were there -- but on other special occasions the rooms were packed !

Several work days are planned in April to finish the library and third floor. Much work is also necessary to re-arrange the Barn Museum. A big THANKS to the work crew and the loyal staff who maintained the Museum during its openings. The 1976 Museum Hours will be announced in the March Bulletin.

NATIONAL HISTORICAL RADIO CONFERENCE

By popular choice, Canandaigua may again be the site for the 1976 Conference.To be confirmed at the Annual Business Meeting.

SPECIAL REPORT:

NATIONAL HISTORICAL RADIO CONFERENCE

Here's the Story!

364 plus registered for the 1975 AWA Conference making it the largest historical meet ever held in the United States -- and for that matter, anywhere else ! The Program Chairman believes all events were good...feedback indicates he is wrong -- members say they were excellent ! ! Two days and three nights packed with action...and now for some of the highlights:

--formal A.W.A. Museum Opening with ARRL Director Connie-Mac and Smithsonian Rep. Elliot Sivowitch "breaking Morse Register tape".....

--huge auction of old broadcast sets plus 3 days of open flea market in the parking lot for the collectors.....

--ladies' committee providing an all around program with Treasurer Cundall refunding $3 of $4 Registration Fee..

--Ralph Williams and his ARCA Committee deftly handling a beautiful display of early equipment for the Contest....

--with Larry Whitlock being awarded 1st Prize for having the outstanding entry...

--Stu Davis and company proving it is possible to operate 4 individual circuits with only 2 wires !

--Bro. Pat Dowd giving a superb technical paper on metal tube development..

--Thorn Mayes giving "specs" on almost unbelieveable mechanical giants that generated RF.....

--countless photographs of giant ocean liners and their fate climaxed with the Titanic disaster.....

--and then Rex Matlack topped the show by presenting AWA Museum a scale model of the Titanic representing 104 hours of precision assembly work...

--16 year Al Grebe's grandson ("Chip" Meiers) walking away with the program !

--Art Goodnow, W1DM breaking W2LV's winning streak and becoming the winner of the 1975 OT Transmitter Contest.

--Glenn Rogers (IHRS) presenting AWA two huge Armstrong and Marconi photos..

--Bill Breniman and Stu Davis winning the Houck Award...

Elliot Sivowitch (K3RJA) of Smithsonian Institution and Harry McConaghy (W3SW) A.R.R.L. Director opening A.W.A. Museum and Conference when they "break the tape" stretching across the entrance stairway. The paper tape was removed from a 1905 Morse Register. (All photos by Al Crum, W2BWK unless otherwise noted.)

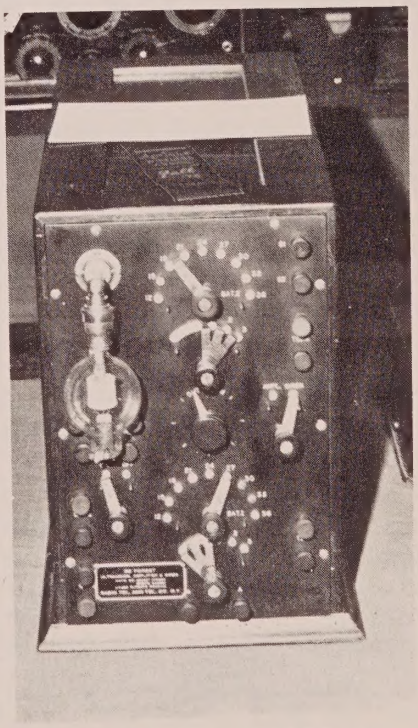
S.O.W.P. program was highlighted with three speakers telling of present day ship-to-shore communication. Seen is Bill Gould who was followed by Thorn Mayes and Art Goodnow.

Dinner Guests were startled when two huge photographs of Marconi and Armstrong were brought forward and placed behind the speakers table --a gift from Glen Rogers of I.H.R.S.

CONTEST PRIZE WINNERS

Spark Radiophone transmitter
(Ralph Muchow)

Clapp-Eastham speaker
(Bill Lightfoot)



De Forest Amplifier
(Larry Whitlock)

UNUSUAL EQUIPMENT IN THE A.W.A. MUSEUM

SCYRAD CRYSTAL SET

Made by Schenectady Radio Corporation

When WGY formally took to the air in February, 1922, it followed months of testing under the call 2XI and even included some CW tests between Schenectady and Pittsfield, Mass. Entertainment broadcasts brought many inquiries on where to buy suitable receivers but such was not to be found in the area. Two engineers from the G.E. Laboratories set up shop in downtown Schenectady under the name of SCHENECTADY RADIO CORPORATION, probably one of the first "loft manufacturers" of many to follow. There was no relationship with General Electric. Little is known about the products of SCYRAD other than the SR-12 which was the first and it appears that several hundred were made. They sold for $7. each less fones. The nameplate on the bottom of the one at the A.W.A. Museum gives interesting information and has the date 5/5/22. --- Ralph Yeandle

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REPORT ON THE

1975 ARRL NATIONAL CONVENTION

AFFILIATE

The A.W.A. HISTORICAL DISPLAY at the 1975 ARRL National Convention (Reston, Virginia) was one of the major attractions. Equipment from the Museum was supplemented by several pieces brought in by Jack Kingman, W4JT making a versatile exhibit of receiving and transmitting equipment.

The Convention Committee provided one of the finest technical programs ever presented at an amateur event. Saturday programming was climaxed by Wouffhong ceremony at midnight with Ed Redington (W4ZM) as the "Old Man". Ed was in perfect form and well "qualified" to handle the position having "traveled" and seen the "light" in another organization. Hiram Percy Maxim would have been proud of the Degree Team.

The highlight of all amateur events is the opportunity to meet old friends. This was no exception. The first one we ran into was Bill Orr, W6SAI who we missed at the Foothill "meet". Bill commented on several early "classics" he recently acquired and left us envious. Other friends from California with whom we chatted with were "Chuck" Towns of OSCAR fame, Jack Troster (author/writer) and two former Rochesterians: Howie Leake and George Pugsley.

The lobby was a path of all districts which kept one busy exchanging greetings: "Cappy" and Phil Haller (ARRL Director) from Chicago, Author/Editors Bob Hertzberg and Frank Lester, Larry LeKashman, Prose Walker, Frank Gunther, Dave Talley and numerous others including our many friends in the Washington area.

One morning we had breakfast with Dick Ross, "CQ" Editor, who confessed he had an interest in historical radio. Later in the day we had a lengthy talk with Jim Fisk of "Ham Radio" magazine who likewise had similar interests.

The A.R.R.L. "gang" were there in full force: Dick Baldwin, John Huntoon (sporting a full beard !), Harry Daniels, Noel Eaton and many directors all of whom we knew personally. We even had a chance to talk with Ellen White which reminded us of our one time interest in DX.

Partial view of exhibit showing W2ICE "holding the fort" while K2WW and W4JT are out to lunch. (Photo by Bob Hertzberg)

A.W.A. is an ARRL Affiliate and is currently making two new slide shows for A.R.R.L. Training Aids. The Association plans to have a historical exhibit at next year's Atlantic Division Convention (Philadelphia) and possibly at the National (Denver). See you there.

73, Kelley

Magnavox Will Build MARISAT Terminals

RCA Global Communications recently announced it has selected the Magnavox Company to supply shipboard satellite communications terminals for use with the Marisat system.

RCA Globcom is a member of the Marisat consortium, formed to introduce satellite communications for ships at sea. Marisat will make possible high-quality, worldwide telex, telegram, voice, data and facsimile communications between shore-based offices and ships equipped with satellite terminals. The primary means of marine communications at present is manual Morse code transmitted via high-frequency radio.

The Marisat system will utilize two satellites, one for Atlantic Ocean service, the other for coverage of the Pacific.

LAMP DISPLAY

Bob Ryan (Anaheim, Calif.) has again made a fine donation to the Association's Museum -- this time with a collection of rare (and beautiful) electric light bulbs. It was a thrill for the several who opened the box and carefully unwrapped the various colored lamps of a bygone era.

With one or two exceptions, all were colored and mostly with carbon filaments. One was a brilliant multi-filament lamp made by German AEG.

Some thought is being given to place them in sockets and apply about 70 volts for display (the filaments will last almost indefinitely with a lower voltage.)

PROBLEMS

Several OLD TIME ADS were received too late for the last Bulletin (Sept.) and were held over for this issue. "Ads" MUST be mailed BEFORE the 10th of the month to insure mail delivery by the 15th. The OTB is sent to Makeup Editor on the 15th !!

Further: Many "ads" were too long and had to be CUT DRASTICALLY. Total length will be 7 lines (on our typewriter) including name and address. This is a FREE service, so please co-operate with OTB Staff and other members....

William Breniman

HOUCK AWARD

1975

Historical Documentation

WILLIAM BRENIMAN

Santa Rosa, Calif.

For the past several years the recipient has done outstanding work in gathering, editing and publishing historical material in various publications (Year Book, Port O'Calls, etc.) for the Society of Wireless Pioneers. Without this documentary, valuable information would not have been published and in all probability, records lost. With a lifetime of communication behind him, Mr. Breniman retired in 1957 from CAA under which he held many positions including Deputy Chief.

Historical Preservation

STEWART DAVIS

Union, N.J.

Mr. Davis has for the past 35 years been instrumental in identifying and preserving vast amounts of rare historical landline communication equipment which otherwise would have been lost. He has assisted several public museums in cataloging and setting up historical displays as well as maintain the National Telegraph Museum. His interest and knowledge on historical equipment has made him a speaker at numerous events including three AWA Conferences. One will never forget his outstanding demonstration of handling high speed Morse traffic (with Ralph Graham) at the Smithsonian in 1968.

A.W.A. ON THE AIR

Send all old time transmitter construction and operation news to: W2BGN
Ken Gardner
42 Oakdale Ave. S.
New Hartford, N.Y. 13413

OLD TIME TRANSMITTER CONTEST

OBJECTIVE: Work the greatest number of AWA members. When calling use --"AWA AWA de W2AN" as example. On contact, exchange year of equipment such as "TX 36, RX 30".

DATES: Wed., Jan.14, 6:00 P.M. to
Thurs., Jan.15, 6:00 P.M. EST.
Thurs., Jan.22 6:00 P.M. to
Fri., Jan.23 6:00 P.M. EST.

FREQUENCIES: 3580 to 3590 Kh. for Old Time Transmitters
3590 to 3600 Kh. for Modern Transmitters

7040 and 14084 plus or minus for either type. Concentrate 40m. and 20m. QSO's on the hour.

SCORING POINTS:

1 for QSO with 1940 or later station.
2 for QSO with 1939 or earlier TX or RX.
3 for QSO with 1939 or earlier TX & RX.

POINTS MULTIPLIER:

2 for station using 1939 or earlier TX.
3 for station using 1925 or earlier TX.
2 for station using 1939 or earlier RX with one or more SG or pentode tubes.
3 for station using 1939 or earlier RX with only triode tubes.

EXAMPLE:

Stn A, TX 30 RX 33 QSO Stn B, TX 25 RX 70
Points for A = 2 Points for B = 3
Mult A TX 30 = 2 Mult B TX 25 = 3
Mult A RXtri = 3 Mult B RXmod = 1
Score: 2x2x3 = 12 Score: 3x3x1 = 9

RULES: A station will be scored only once on each band. No crossband contacts. Non-member contacts will not count.

Send Score Sheets to: Ken Gardner, W2BGN
42 Oakdale Ave., South
New Hartford, N.Y. 13413

Results AWA Old Time Transmitter Contest

The results of the 1975 OT Contest are now official -- Art Goodnow is the winner ! See article elswhere in OTB on his 1928 winning RX.....

MURGAS -- WIRELESS PIONEER

On Sunday, November 23 at 2:00 P.M. the Murgas Amateur Radio Club of Wilkes-Barre, Pennsylvania commemorated the first public transmission of wireless telegraphy over land between Wilkes-Barre and Scranton by Father Joseph Murgas of Wilkes-Barre. This event took place on November 23, 1905 and involved communication between the public officials of Wilkes-Barre and Scranton.

The main event was at the Sacred Heart Church in Wilkes-Barre where Father Murgas had been Pastor and the Mercy Heights Hospital in Scranton. A two meter amateur radio link simulated the original transmission.

--- Charlie Hooker (W3HUU)

AWA NETS

PHONE

Sunday -- 12 noon
3903 Kc.

Tuesday -- 8 P.M.
3865 Kc.

CW -- 3584 Kc.

8 P.M. First Wednesday of each month

4 P.M. Daily
E.S.T.

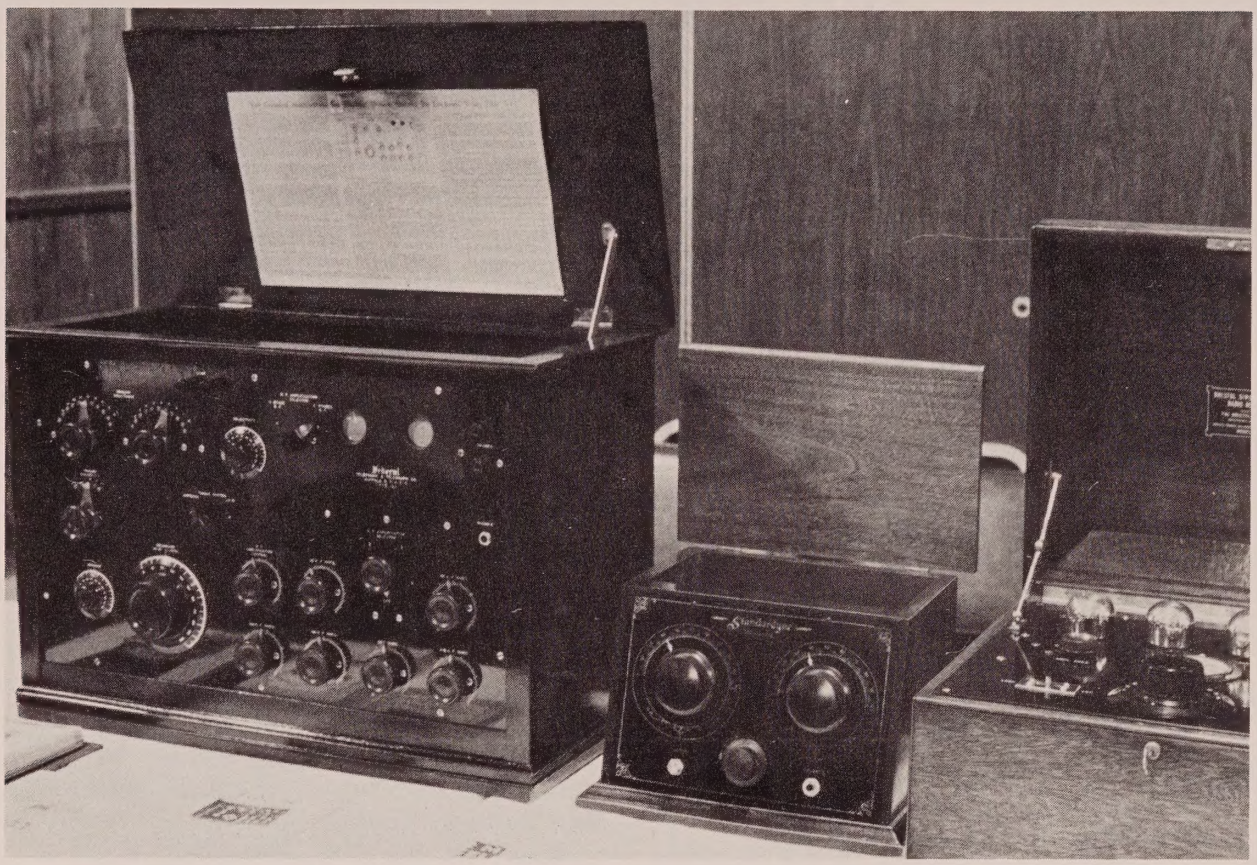
50TH ANNIVERSARY QSO LISTING

W3QA [1PY] -- W1BVL [1BVL]
April 1925 - 1975

W6IC [8ALG] -- W8CCN [8CCN]
Nov. 1924 - 1975

Congrats !!

PART OF BOB LOZIER'S EXHIBIT AT THE SOUTHERN A.W.A. MEET



A.W.A. SOUTHERN MEET

Our first Southern Meet almost had a problem -- only 30 or 40 were expected -- and nearly 100 showed up ! However, Lew Elias and his Comittee handled the situation without difficulty. In fact, the group did a superb job in planning and organizing the affair -- so much so, they are having another in 1976 -- July 9-10 [same place, Holiday Inn, Winston-Salem, N.C.].

It was not altogether a local "meet" -- members registered from N.Y., Ark., Ind., Fla., Ga., S.C., etc. There was the usual fine exhibit [and flea market] of early broadcast receivers -- and even an amateur transmitter plus some early tubes and bulbs.

Old pro's dominated the program: Wayne Nelson, Lou Moreau, Ed Redington and others with a new luminary: Paul Klipsch of loudspeaker fame. Mark the next date on your calender: JULY 9 - 10, 1976

OLD CLOCKS FOR OLD RADIOS

If interested, drop a line to Richard Brewster, House #33, Wada Takahama-Cho, Ohi-Gun, FUKU-KEN,JAPAN 919-22

Dick is on Westinghouse assignment in Japan and would like to correspond.

NEW GEAR AT A.W.A.

TUBES: W2GK, W2FXN, Nelson Steehler, Tom Phelan

BULBS: Bob Ryan

RECEIVERS: W2IK, W4RVE, W3GD

TRANSMITTER: W1IQK, W2PKD

MODEL SHIP: W3EFX

PHOTOS: W3EFX, W9ASX, "Chip" Meiers

BOOKS: W2UTH, K1ZZU, W2EMX, W2BGN, W2QO, W8EF, Everett Berry, Sid Prior , William Tatum IV

TAPES: VE6EA, Doug Houston, Orvall Parker

MISC.: W2UTH, W8EF, W2YL, ex-8AFA, W2WS, W2GK, W2BGN, W8DNL, Gay Ewing, Nelson Steehler,

AMATEUR CALLBOOKS

The Association now has a nearly complete set of amateur radio call books starting with pre-1913 government book listings. A fair percentage of this huge collection of valuable books was donated to A.W.A. by Tom Jefferis,W8EF/K4ZQ (ex-6ADC/6UA).

No definite decision has been made but some thought is being given to providing a service to members interested in tracing the history of a given amateur call sign...more later.

OLD TYME HAM ADS

OLD TYME ADS are FREE to members who are interested in collecting and restoring historical equipment as an amateur. They are not to be abused.

RULES FOR ADS:

1. Material must be over 25 years old and related to radio or electricity.
2. Ad MUST be written on separate sheet of paper --- not part of letter. For acknowledgement--send S.A.S.E.
3. Give full address, Zip number and call letters (if any).
4. AWA will not print repetitious ads or ones indicating regular sale for profit.
5. The Association is NOT responsible for any transaction.
6. AWA retains the right to reduce size of ad if OVER 7 lines including address.
7. Only ONE ad per member per issue.
8. All ads must be received 6 weeks prior to mailing date. (See deadline dates on this page.)
9. Mail to: Antique Wireless Assn. Main St, Holcomb, N.Y. 14469

WANTED: Signal Corps pamphlet series "Radio Pamphlet" & "Radio Communications Pamphlet" & Signal Office Cir. No. 1 "Radiotelegraphy". Signal Corp BC & SCR nomenclatured radios before 1926. August Link,12600 Braddock Drive, Los Angeles, Calif. 90066

WANTED: Microphones made between 1920-40. Also literature. Write Bob Paquette, 443 N. 31 St.,Milwaukee,Wisc. 53208

WANT: Spherical DeForest Audion triode tube made by McCandless (xmas tree manufacturer) for Dr. DeForest about 1904. It has a carbon filament and candelbra screw base. Lad. Schnedorf, W9EWK, 610 Monroe Ave.,River Forest, Ill. 60305

NEED: Murad MA-15 left front var. condenser. Trade 201A tubes or will buy. Also have Brandes fones, III Riders, 24,26,27,112,71 tubes, etc. Basil Abbott,Colonial Forest Rt. 5,Box 322 Mechanicsville, Va. 23111

FOR SALE: Very old RCA Victor steel phonograph needles in original package of 100. Two packages for $1.00 and SASE. Jack Piper Jr., 402 Bay, Brookhaven, Ms. 39601

FOR SALE: RARE COLLECTION OF EARLY WESTERN ELECTRIC TUBES donated by Gerald Tyne with proceeds going to A.W.A. MUSEUM FUND. Send SASE for description. Write: A.W.A.,Main Street, Holcomb, N.Y. 14469

FOR SALE: Tubes, magazines and parts for antique sets. SASE for list. Harry Cap, 190 Beach Street, Bridgewater, Mass. 02324

WANTED: AK breadboards, Radiola I, VI, Fada 160, Garod RAF,Zenith 3R or 4R, factory loose-coupler,AK service manual, Freed-Eismann literature,Riders I,II,IV. Richard Wolven,2614 Reno Road.,Castleton, N.Y. 12033

HELP ! need copy of "Principles of Electricity Applied to Telephone and Telegraph" pub. in 1953 by AT & T Co. Please send condition & price. Write: Kevin Mullen, Box 87, Whitehouse Sta., New Jersey 08889

WANTED: 80 meter coils for National FB-7 Will buy, swap 40 meter coils for same set. Leland Smith, W5KL, Box 38-B, Rte. 3, Jasper,Ark. 72641

WANTED: Key & sounder on cast iron base made by Bunnell Co. (later Partrick-Carter).Trade Grebe CR-8,missing cab., tube socket,tuning dial & tuning device & lower right panel. Write: Joseph Benne,494 Hirsch Ave.,Calument City, Ill. 60409

WANT: "Radio News" good cond. with covers- 1923 Jan,May,July, 1924-March, Sept.,Oct. 1925- Jan,Mar.,May, Nov. Also "Elect. Experi." 1919-Mar, April, May,June,Nov. Want A.W.A. OT BULLETINS Vol 1, No. 4 and Vol 2 No. 1,2 & 4 and Gernsback Radio Service Manual (1929) Floyd Lyons,456 Post St.,San Francisco Calif. 94102

DEADLINE FOR OT ADS

Jan. 15	------	March issue
Apr. 15	------	June issue
July 15	------	Sept. issue
Oct. 15	------	Dec. issue

HELP ! Need multivalve tube for Baby Emerson, or someone to repair broken envelope on the one I have. Also 2 standard black 3" Crosley knobs. Del Barrett, 1517 Pacific, Ft. Wayne, Ind. 46819

WANTED: Crosley, orig. Philco knobs for Mod. 70 with below Ser. #22000 and 3KP4 pic. tube. Kurt Mayro 443 Argyle Rd.,Drexel Hill,Pa. 19026

WANTED: blank panels (bakelite,etc.) any standard size for cash or will swap tubes for same. George Haymans, Box 468, Gainesville,Fla. 30501

WANTED: badly need Paragon DA-2 amp. will take one with bad ext. if OK inside or will take parts for same. Want any spark or early CW gear. Rick Ammon, Box 104, Mt. Carmel, Ill. 62863

WANTED: Instr. book for A.C. Dayton Co. Flewelling short-wave adapter Type UX, also orig. AFT for Freshman Masterpiece '24 vintage. H.B. Davis, 1201 Riverside Dr.,Indiatlantic,Fla. 32903

TRADE or buy: good 01A tubes and some receivers for factory crystal sets, deForest loop,loose-couplers. Also need Clapp-Eastham HR panel & socket & crystal detectors. Bob Lessard, 4807 N.E. 5th St.,Columbia Hgts.,Minn. 55421

SWAP: 50 watt 203A xmtr tubes, AK Mod. L horn,AK Type E, RCA 103 (needle work) speakers. WE 7A amp. Need Federal Jr. crystal set or what have you ? George Ayers, 3302 N. 9th, St. Joseph,Mo. 64505

WANTED: 1921/25 Greene receiver,Greene Concert Selector and Greene Amplifier. Designed by Lloyd C. Greene (W1ACF) first Radio Editor of Boston Globe. Write: Lloyd C. Greene Jr., The Millstream,Chelmsford, Mass. 01824

WANTED: will pay for picture of Firth 3 tube early 1920 receiver. R.T. Mac Farland, 3720 Dewsbury Rd., Winston-Salem, N.C. 27104

WANTED: power supply for National SW-4 receiver. David Morris, W3CWY, Box 255-M RD #4, Babcock Blvd.,Gibsonia,Pa. 15044

SELL: Quantity of RCA advertising folders from mid-1920s--RCA Radiola III,V,VI,VII, tubes, speakers, etc. Also manual for Radiola Grand including circuit. SASE for list. Julian Jablin, W9IWI, 9124 N. Crawford, Skokie, Ill. 60076

WANTED: 6 WD-11 tubes in working condition. Also manual or reprint on DeForest D-10 and information on Apex radios. G.J. Thompson, W9CHP, 4225 W. 115th St., Alsip, Ill. 60658

HELP: Need small knob for Kennedy V, tuning induct. for GE AR-1300, AFT for Grebe MU-1,knob for RA unit, Need for WBT Museum: One tube set commercial or homebrew (1922-24) & any issue of "WBT Official Radiologue". Bob Lozier, 318 E. Houston St.,Monroe,S.C. 28110

WANTED: literature or info on First 1 inch National Oscilloscope Mod. CRM, 1 tube with 913 CRT tube, 4 controls, vert, hori, intensity and brightness. Write: Brent Dingman, Box 15370, Long Beach, Calif. 90815

WANTED: WD-11's with open filaments, any info or liter, on: 1925 Elkay, 1925 Elkay 5-S Super-Selector,Amplex "DeExer". Ed Wyspianski, 27 Sunny Waters Park, Norwich, Conn. 06360

WANTED: Vol. #1 and Vol #3 of ARRL "Hints & Kinks". Also set of honeycomb coils,wither Remler or DeForest type with mount if possible. W6QV, J. W. Anderson, 10912 Sherman Grove, Sunland, Calif. 91040

WANTED: SWL-BCL QSL cards,letters, pamphlets,mike pennants 1920's-1955 No amateur Qsls wanted.Early International SW & BC. Send description only. L.B. Zimmerman, 8448 N.Harding Ave., Skokie, Ill. 60076

SWAP/SELL: Natl. 1-10 with pwr. supply, "C" coil $25., Day-fan 5005 $30. Want: Accessories for Exp. Info. Serv. Mod. C superhet (mod. S,J, & L), also G.R. Rad. #371 RFT & #285 AFT. Mark Evans, 102 West Ridge Dr.,Tallahassee,Fla. 32304

SELL or TRADE: 50 vintage radios,books, magazines,tubes,parts, service manuals, Send large SASE for list. Want unusual electrics & novelty sets. K.D. Johnson, Box 518, Oquawka, Ill., 61469

FOR SALE: rare DeForest 15 Unit Panel receiver with one crystal detector and one V.T. Write for more information. Everett Berry, 800 Kendon Dr., Lansing, Mich. 48910 (517-882-5905)

WANTED: AK breadboards and any parts for breadboards, 300 ohm loudspeaker. DeForest Panel units. Glen Angle, KØTAM, Clear Lake, South Dakota 57226

NEED: 4 pin UX socket QST page 84, Dec., 1926; Pacent Universal 4 pin UX socket Cat. #82, page 79 QST, Jan. 1926. Need 2 of each. Wes Chatellier, W5DPM, 1950 Chevelle Dr., Baton Rouge, La. 70806

SELL: Scott 23 tube Imperial, McMurdo-Silver Masterpiece VI,Scott Military set -- all in excellent shape. Best offer. Want "Scott Special" broadcast receiver. Jim Clark, 1617 Roselawn, Lansing, Mich. 48915

WANTED 2 thumb nuts & AFT fot CR-9, 2nd AFT for S-C 601, AFT for Radiola 20, AFT for Thompson Grandette,AFT & "C" panel for Radiola II,horn for Burns spkr. Cash or trade. Have parts to swap. Charles Day,30 Sagamore Dr., South Dartmouth, Mass. 02748

(Cont. on next page)

WANTED: Schematic,RF transformers, grid leak and grid leak mount for Federal 61. Case for Aeriola Sr. Bill Condon, 1434 Princeton, Apt. B, Santa Monica, Calif. 90404

WANTED: early battery radios and loudspeakers. Have material to swap. Lynn Johnson, 8 Norman Dr.,Bloomfield, Conn. 06002

WANTED: Radiola 26 portable radio set in good condition. Buy or trade. George Boettcher,355 Pleasantville Ave., Hackensack, New Jersey 07601

WANTED: World's Record Supers,Scott AC Symphony and Selectone parts, buy or swap AK breadboard. Need Fed. 61 tuning and vernier cond.,Neutrowound covers. Battery sets for sale.S.A.S.E. J.G. Halser, 2438 So. Howell Ave.,Milwaukee,Wis. 53207

SELL-TRADE: AK 10.40,46,60 (no spkrs.) Radiola 46 (no cab),Radiola 28,80 chassis, ext. parts for the 80. Philco 20 chassis, Philco A&B elim.,GM 150 Combo radio, Weston Stand. cell,books, etc. send SASE. E.T. Montgomery 1092 Willowbranch Ave., Jacksonville, Fla. 32205

WANTED: Neutrowound rcvrs,Radiola 24, AK Service Manual,Radio News 1919-1929, Radio Retailing 1925-1937,Tonebeam tube and spkr for AK812. Buy or swap.Have mint Federal Jr. for rx of equal value. John Wolkonowicz,11Hartford Rd., Worcester, Mass. 01606

FOR SALE: DeForest spherical Audion, single plate, good filament. Also G.R. 224L Wavemeter,Litzendraught wire (22) large spool,L&N inductance bridge and Inductometers,W.E. tubes. Ray Nichols, W2RN, Rte. 2, Cattaraugus,N.Y. 14719

WANTED: Cabinet,good AFTs,phone jacks & owner's manual for CR-9, lid for AK 56, instruction manuals for Supreme 189 Sig. Gener.,Supreme 89 Tube tester and Supreme Master Diagnometer. Have Kellogg Mod. 510 RFL set with Kellogg 401 tubes. WaltSanders, 15 Todd Place, Terre Haute, Ind. 47803

WANTED: A.C. Pilot Super-Wasp front panel, AFT, output filter trans. and plug-in coils. Have no swap material. Please quote prices. Pete Langlo, WA6PFF, 373 N. Kellogg Ave.,Santa Barbara,Calif. 93111

MAKE OFFER: have duplicate I made of Ryman's Wenger's Paragon Type 3, Arthur Bardish,4042 Herman,S.W.,Grand Rapids, Michigan 49509

NEED: Good UV-199 & WD-11 tubes, want info on Hatfield Radio Corp.,Sioux City Iowa (early 1920) and Tri-City Radio Elec. Co. (mod. W-1 radio) Write: Maury Sievers, 612 E. Winter Drive., Phoenix, Arix. 85020

FOR SALE: Several battery radios and early AC sets, speakers, set testers and other gear. S.A.S.E. for list. Alan Smith, 6712 Bisby Lake Avenue, San Diego, Calif. 92119

FOR SALE: Riders 1929 Trouble Shooters Manual (schematics) also Riders #1 thru 6 Manuals. Make offer for one or all. M.J. Vinkey, K2DPW, Williamson, N.Y. 14589

WANTED: Radiola 18 dial lamp cover; AK H and RCA UZ-1325 spkrs; Weston No. 506 V.M. for Stromberg-Carlson 601, 1 mfd. cap. for S.C. 1-A; Zenith 5C01 (1946) rcvr.,no case cracks. Stan Gross, 2826 St. Paul Blvd.,Rochester,N.Y. 14617

SELL or SWAP: duplicate battery radios. SASE for list. Vince Highmark, WØEVD, 525 Ninth Ave.,Two Harbors,Minn. 55616

SELL: Brank new Karas Orthometric (straight-line) 23 plate air condensers, packed in original boxes manu. in 1920s. $7.00 each postpaid. Limited quantity available. J. Fisk, W1DTY, Main St., Greenville, New Hampshire 03048

WANTED: Grebe Synchrophase MU-1, also any cathedral or unusual AC sets. Richard Cane, 8391 N.W. 21st Street, Sunrise, Fla. 33322

WANTED: Allied catalogs 1933 or before, also Midwest and Montgomery-Ward radio catalogs, Vibroplex Key catalogs,.Have QSTs from 1927 to 1970 to sell or swap. Send SASE for list of old radio catalogs. Nicholas Vangodd, W8OUS, 21369 Audette, Dearborn, Mich. 48124

MUST SELL collection of old radios vintage of late 20's and 30's plus Riders. Send S.A.S.E. for list. Al Woodcock, Box 1251, Prescott,Ariz. 86301

WANTED: Kennedy 281, Grebe sets,early Crosley including amps for Model 50 and 51. Buy or swap. Steve Meyerkorth, 2208 S. 50th Ave.,Omaha,Neb. 68106

WANTED: General Radio Wavemeter #358. U.S. Army Spark Set Mod. SCR-65, loose-coupler. Buy or trade. Woody Cook,W9GJS 410 Brewer Place,Greenwood,Ind. 46142

FOR SALE: E.I.S. Super-het Mod. 1, W.E. TRF receiver rack mount,used for radio. W.E. 18-B Amp.,W.E. 47A condenser mike, G.R. 275 Piezo Osc.,Jewell Wavemeter, Atwater-Kent 35,RCA Audio Chanlyst. Make offer. Want W.E. 4-D. P. Trestan, W2HA, 27 North Star Dr., Morristown, N.J. 07960 (201-539-3482)

REDUCING size of collection. Many items such as magazines,call books,tubes, receivers and transmitter,s etc. What are you looking for ? Erv Rasmussen,W6YPM, 164 Lowell St.,Redwood City,Calif. 94062

WANTED: 1928 and 1934 A.R.R.L. Handbooks. Robert Arrowsmith, 3505 Woodburn Rd., Annadale, Virginia 22003

FOR SALE: G. Marconi portable Model 55 with 5 good Marconi valves (tubes) -- $750.00 Also 45 ea. 12/112 brand new tubes $6.00 ea. Wick Steed, 1335 Thousand Oaks Blvd.,Berkely,Calif. 94706

WANTED: Radiola IIIA chassis,Radiola 26 chassis,Radiola balanced amp, dud WD-11s, Pilot vernier dial (round brown one), Radio Boys books & WE 518W horn. Send SASE for list of radios & parts for sale. Jack Bacon, 264 Xerxes Ave. N., Minneapolis, Minn. 55405

WANTED: Vernier dial for AC Dayton XL-25, coils for Nat. SW-5, "Golden Bear" speakers (looks like a wastebasket), Have mint panel for a "Klitzen-Five". Ed Allison, 5525 20th Ave., Sacramento, Calif. 95820

WANTED: Philco Model 70B parts- tuning dial,escutcheon plate & 4 knobs also a AK 33 grid leak. Lawrence Moser, 5925 W. Florida Ave.,Lakewood,Colo. 80226

WANTED: Any info on Ware Neutrodyne Type "L" receiver. Larry Flegle, 25 N.E. 185th Terrace, North Miama Beach, Florida 33179

WANTED: pair 40 meter band spread coils for Nat. SW-3 and tuning condenser for Zenith 3R or 4R receiver. Clarence Filley, W7KE, 1109 South 2nd St., Hamilton, Mont. 59840

FOR SALE: tubes from the 1930s and 1940s. Some common -- some unusual. Most 25¢, some 50¢ and $1.00 Send SASE for list. Tom Ely, W2ODW, 464 Smith Rd., Pittsford, N.Y. 14534

TRADE: 281 Kennedy, mint- for Grebe CR-8 or other of equal value. Need AFT for St. Louis 525 Kennedy amp. Will buy or trade other early AFTs. Need Crosley Pup dial. Arthur Aseltine, 345 Glenwood St., Ann Arbor, Michigan 48103 (Dial 313 761-3459)

SELL/TRADE: Complete HRO Jr.,meters, microphones & other pre-WWII xmtr & rcvr parts plus vintage radios.Want cab. for Echophone V3,Kennedy dials, tube cover for Radiola 26,loop for WE 4B. Let's swap lists. Lane Upton, 526 11th Ave.,Salt Lake City,Utah 84103

TRADE: Have nice Frost loose-coupler for trade in on Amrad,Tuska or Federal set. Also need Pilot Wasp junker chassis & panel. Geo. Hausske, 1922 E. Indiana Street, Wheaton, Ill. 60187

WANTED: E.H. Scott 1939 Philharmonic complete or pwr. supply & seakers for same; McMurdo-Silver Masterpiece VI; any Kolster set. Dick Nelson, 20962 Itasca, Chatsworth, Calif. 91311

WANTED: Plug-in coils,sockets,rheostat for CR-18. Two AFTs and bakelite strip for CR-9. Grebe MU set in any condition. Comet-Pro crystal filter. C. Byrnes, P.O. Box 25,Pismo Beach,Calif. 93449

WANTED: G.R. variable condenser (celluloid case),crystal detector,doorbell buzzer for 1914 wireless set. Day-fan OEM-7 front panel, Horn base & driver for Rola,Magnavox.RCA UZ-1325, AK "M". Al Mackenzie,1625 Hillandale Road, Columbia, S.C. 29206

SWAP: horns from loudspeakers: Magnavox, AK, Burns,Majestic,Bristol, etc. Complete spkrs: AK, Magna R-3,Radiola 100A. Need "All-wave" antenna kits such as Lynch, RCA,Philco, etc. T. Turner, K8VBL, Rte. 2, Box 415, Watervliet, Michigan, 49098

WANT: complete knob set or any available knobs for General Eelectric radio K-63 (wooden knobs). Write: Roc Morinelli, 901 Fairfax Rd.,Drexel Hill,Pa. 19026

WANTED: Rider's Vol. 16, Have Vols. 7 or 8 to trade. A. Smith, Stonehedge, Lincoln, Mass. 01773 (617-259-9351)

WANTED correspondence from "super-audible-heterodyne" Supertone owners or individuals having info on same. Want nice RA10/DA-2, CR3/RORD or CR8/RORK. Greg Dockter, 2519 Ave. C East, Bismarck, North Dakota 58501

HOW about a diagram for AK Mod. 20 ? R.W. Randalls, K6ARE, 1263 Lakehurst Rd., Livermore, Calif. 94550

WANTED: Info re ACE Type TRU/Precision Equipment Co. (Crosley ?) Armstrong patent. Need panel 16 3/8" x 6 1/4". var. cond.,variometer,rheostat,multipoint sw.,tube,diecast socket. Bill McGuire, 2310 Taft,Oregon,Ohio 43616

FOR SALE: Old battery & AC radios, speakers,parts & trans. tubes. Also 1947 Motorola 7" portable in leatherette cabinet (mint). SASE for list. Robert Youhas, 270 Baldwin Rd., Parsippany, New Jersey 07054

FOR SALE: Fada neut. kit, AK 40 (needs belts,AK spkr. Mod. E-2, UX-201A,VT-1, WE205D,Kennedy Mod. 20,Type 440,RCA sspkr Mod. 100 & 100A,Radio magazines; FB-7 coils,crystal set. Jack Nelson, W2FW, 915 Sherman St., Rotterdam, N.Y. 12303

FOR SALE: Complete QST collection. SASE for info. Will trade good DeForest spherical Audion for W.E. double-button mike in Model 1A case. Paul Giganti, W6GVY, 2429 San Carlos Ave., San Carlos, Calif. 94070

WANTED: Pilot DC Super-Wasp including plug-in coil set. L.P. Rayner, 5512 N. 71st Place, Scottsville, Arizona 85251

exactly what you need

A METHOD OF MAKING (CASTING) PLASTIC PARTS USING AN EXISTING PART AS THE MODEL FOR THE MOLD OUTLINE

by V.E. Peterson

To replace hard-to-find knobs and other small parts, I have used the following method of making them with acceptable results (see photo).

Parts are cast from polyester resin, colored to suit, and cast in a silicone flexible mold.

The knob that you wish to duplicate is positioned on a shaft in a fixture similar to one shown in sketch. The fixture may be made of wood or metal as long as there is a container for the silicone and a method of positioning the knob.

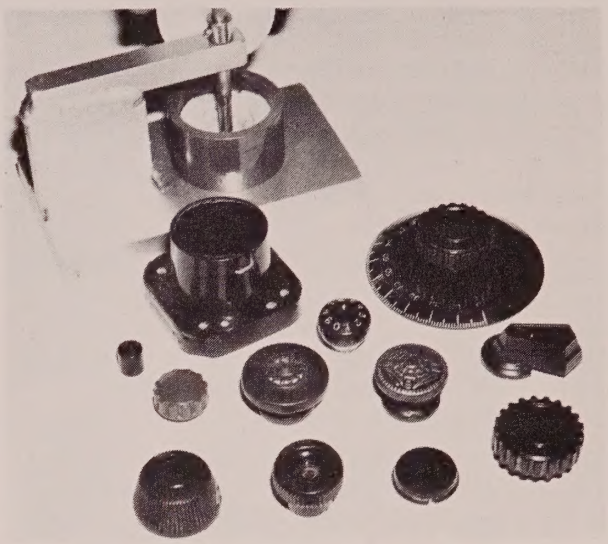
Mix the silicone as per instruction and place in a vacuum chamber to release trapped air. If a vacuum chamber is not available, let mixture stand for about one half hour, then slowly pour into the fixture pot.

After silicone has cured, tapered knobs may be removed easily. Knobs with larger heads (as shown in sketch), the knob must be split with a blade part way down the mold -- then peel the knob free. You now have a mold to the outline for the knob you wish to duplicate.

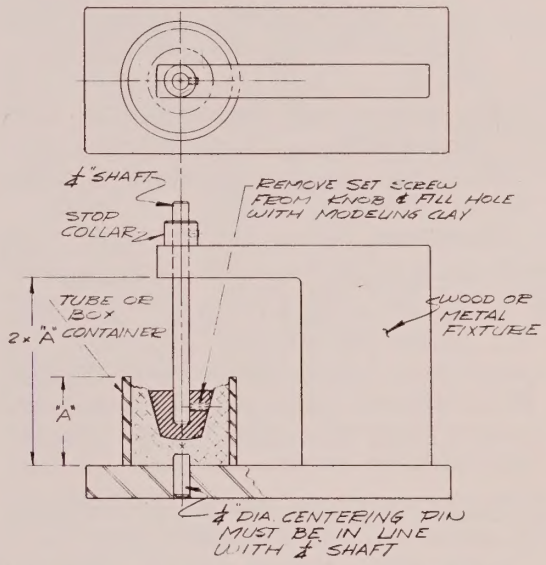
To make the casting: Mix in a small amount of pigment with the resin. A small jar of red, green and black pigment will make almost any shade of brown or black casting. If additional strength is needed in the finish casting, a small amount of glass filler is added at this time.

Allow the mixture to stand for several minutes to release air bubbles before adding the catalist. Position the mold on the fixture, coat the shaft with mold release, and position shaft in mold cavity and then slowly pour mixture into mold cavity. After casting has cured, remove from mold and sand (or file) excess material from bottom of part and in the case of a knob -- drill set screw hole with a No. 28 drill and tap 8-32.

On parts which have lines or lettering, I use a Lacquer Stik for fill. Many other parts lend themselves to duplicating in this manner. Other casting materials such as epoxy, epoxy filled steel and aluminum have been successfully used as well as brass shaft bushings which may be molded in place.



Parts made by the author with the mold fixture described in article at upper left. Note the difficult Crosley "Pup" tuning knob (with numbers) in center. The author made these parts for his own use and are NOT available for sale.


¼" SHAFT
STOP COLLAR
REMOVE SET SCREW FROM KNOB & FILL HOLE WITH MODELING CLAY
TUBE OR BOX
2 x "A" CONTAINER
WOOD OR METAL FIXTURE
"A"
¼" DIA. CENTERING PIN MUST BE IN LINE WITH ¼" SHAFT

Forming mold outline with original part in fixture.

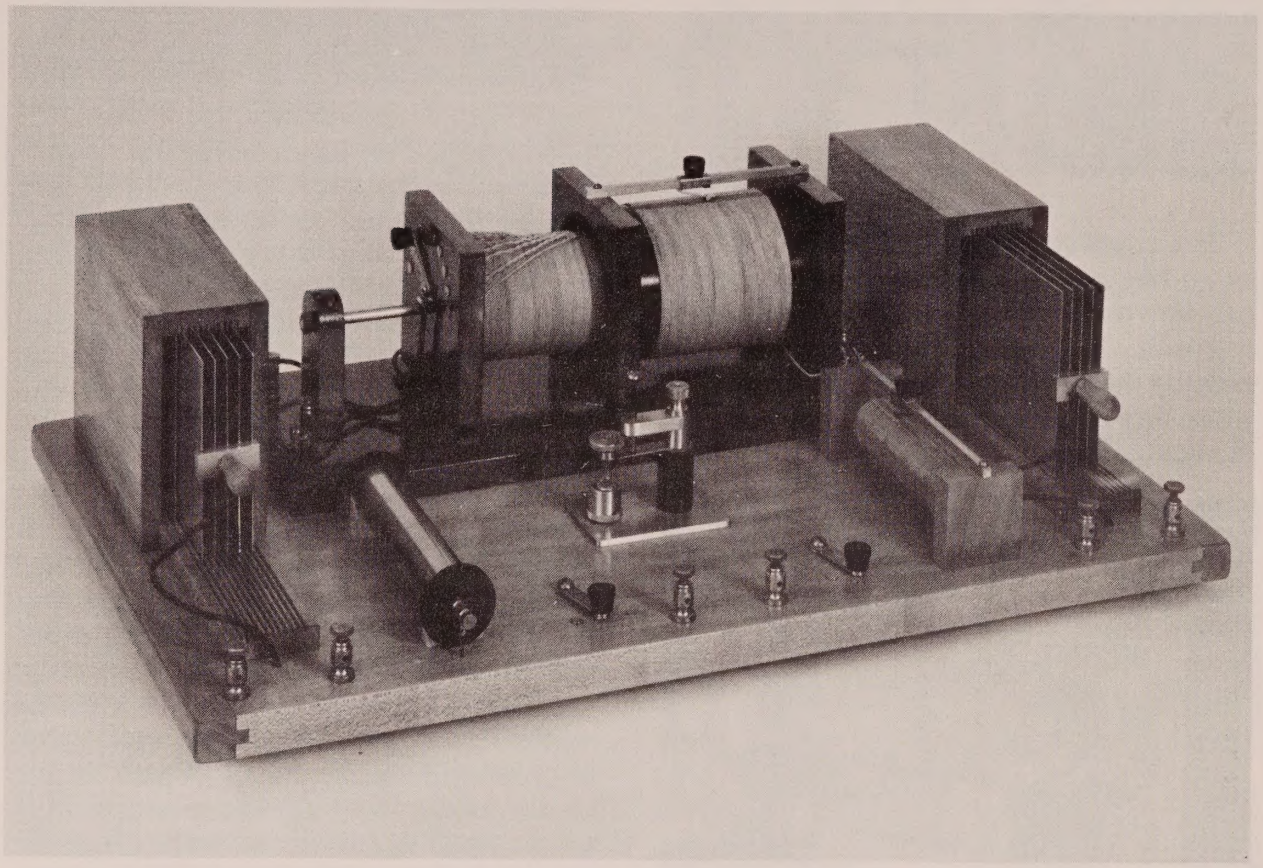
Possible source for material:

Brass rod and set collar--
Burnstein-Appleby, Kansas City, Mo.

Silicone molding compound--
Dow Corning RTV -E- or G.E. Type 700

Casting Resin (Polyester)--
Glass Filler (Cab-O-Sil) --
Pigment--
Plastic Sales Co., Kansas City, Mo.

White line filler (Lacquer Stik)
250 N. Whastenaw Ave.,Chicago,Ill.
60602



Loose-coupler receiver recently built by Alan Douglas from plans in A.P. Morgan's book WIRELESS TELEGRAPH CONSTRUCTION FOR AMATEURS.

Kellogg

MC CULLOUGH/KELLOGG TUBES

by J. K. Bach

Page 33, Sept. 1975 issue CQ magazine Tube collectors will find this article of interest since it tells the story of a tube which little has been written about. Fred McCullough started working on a heater type AC tube in the early 20's which eventually lead to the familiar "horn" type -- later manufactured by the Kellogg Switchboard & Supply Co. The "horns" were of course the filament connections at the top of the tube -- not in the base.

The author points out the rarity of original McCullough tubes of which few were manufactured before taken over by Kellogg -- who made the familiar types 401, 403 and others. Recommended reading for the tube collector.

(CQ magazine is published at:
14 Vanderventer Avenue
Port Washington, L.I., N.Y. 11050)

Publications

ANOTHER PUBLICATION FOR THE COLLECTOR

Don Patterson has announced a new radio paper for the old time Radio "buff" and collector. Consisting of six (6) pages, it will be issued 10 times a year. Contents will consist of old advertisements from early radio magazines plus articles by current collectors. If interested, send $7.50 to: Don Patterson, 1220 Meigs St., Augusta, Georgia 30904

This now makes eleven (11) news/letter bulletin type publications for the radio historian/collector. In addition, we know of at least six (6) authors currently writing books on early radio and related subjects.

We view all this activiy with some satisfaction because when A.W.A. published their first BULLETIN nearly 16 years ago there was doubt whether there would be sufficient interest for even ONE publication !

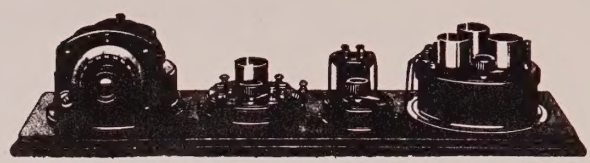
BROADCAST RECEIVERS: THE FIRST 10 YEARS

1920

The amateurs ruled the roost. They were beginning to use vacuum tube receivers and talking about tube transmitters. Electrical dealers were beginning to stock radio parts but there were few if any exclusively radio stores.

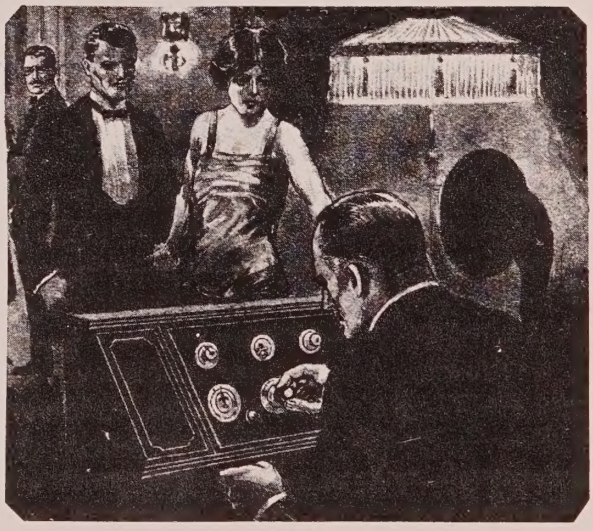
1921

A few men and a lot of boys began to get broadcast minded, and to build their own receivers. There were several factory built receivers on the market, however, including Grebe, Paragon, and quite a few others without national distribution. Some of them incorporated a single tube while others had one or two stages of a-f amplification. All were built in plain cabinets with a panel all over the front; switches and dials galore. Distribution was largely obtained by mail order, although this year saw the influx of thousands of retail outfits in the radio business. Hardware stores, drug stores and cigar stands began to stock everything from galena crystals to complete receivers.



1922

The primary advance in the popularity of radio reception in 1922 was in the response to broadcast. Many new factory-built receivers began to make their appearance. The unit receiver, consisting of from two to fifteen similarly shaped units, made an attempt to capture public approval, and the first radio kits were offered. Radio frequency amplification dates from this period, among the first sets of this type being the Ware, Mu-Rad and Federal of Buffalo. The little flat Mu-Rad radio frequency transformer caused quite a commotion among set builders, whose first introduction to this type of amplification gave them quite a bit to worry about. A detector and three stages of audio frequency amplification was a radio to write home about. Atwater Kent came out with its first set on a "breadboard" during 1922, which was more or less responsible for bringing the prices down to more reasonable figures.



1923

In 1923 the big rush on the parts business commenced. It was still perfectly feasible to expect a man handy with tools to make a set look and work just as good as a factory built model. The latter were all built for table mounting, featuring the panel,

with no regard for cabinet. Parts stores were springing up all over the country; some of them doing a very sizeable business. In the summer of this year the portable receiver made its first appearance of any note, and several manufacturers, including Colin B. Kennedy, introduced small, compact sets for vacationing purposes. Just too late for the summer portable business RCA and Cunningham brought out their '99 tubes, which began to appear in factory sets before the year was over. Phonograph adapters were invented; not the kind that played phonograph music through an amplifier and loudspeaker but the kind that played radio music through the phonograph horn. The Hazeltine Neutrodyne was introduced and immediately won favor as a distance getter. Most of the radio stores, dealing mainly in parts, were getting most of their business in the form of complete sets that they built up themselves. The majority of exclusively radio dealers, in other words, were also "kitchen sink" manufacturers, building receivers on special order or standardizing on one or more regular models and displaying a couple in their windows.

1924

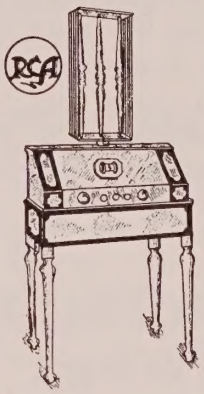
The public began to get cabinet conscious early in 1924, and manufacturers started to build some furniture around their receivers. In January RCA brought out the Radiola Grand, built in a cabinet along the lines of the old fashioned phonograph, with the receiver mounted in the place for the phonograph turntable. Then followed the Radiola Super VIII, combining the first marketed superheterodyne and a new style of cabinet, very awkward as we look back upon it, but unique in that the panel was mounted vertically, on front, with a shelf to hide it. This was the signal for many types of console receivers, but most of the cabinets retained their phonograph appearance. Grebe moved a step ahead by bringing out its famous Synchrophase, in which the usual disc dial had been replaced with a horizontally mounted knurled wheel which just protruded through the panel. These were surrounded by bronze escutcheon plates, which also added class to the set's appearance. Set builders went wild over the superheterodyne, and anybody who couldn't hear stations from across the country were out of the picture. So-called "bootleg" tube manufacturers began to spring up and fade out over night, causing the patent holders much annoyance and giving the set builders a great deal of amusement.

The World-Famous

RADIOLA 28

8-Tube

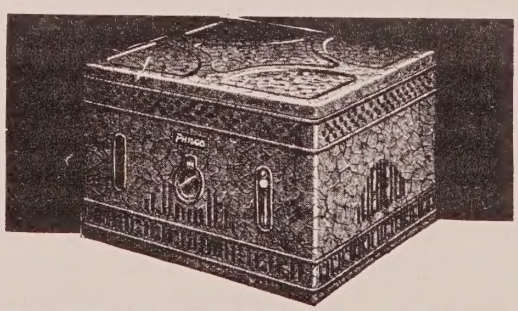
Superheterodyne Receiver



Dry cell battery operated, but will work with proper eliminators. NO AERIAL OR GROUND required. Loop operated which aids greatly to obtain extreme selectivity. Uses the "Second Harmonic" circuits, 7 U. X. 199 and 1 U. X. 120 low current drain tubes. All batteries fit in lower part of cabinet and are easily accessible through unique tilting arrangement of hinged chassis.

1925

This was a big year for the parts manufacturers and dealers who sold parts and built up receivers for sale, especially superheterodynes. Several of the old time manufacturers went after the broadcast listeners' business in a big way. Zenith left off with building amateur apparatus and put out some very expensive console models. Appearance of receivers was improved during 1925 but slightly, while performance underwent some revolutionary changes. This year marks the introduction of the Raytheon B eliminator tube, and the advent of many manufacturers into the socket power appliance field.



PHILCO "A-B" Socket Powers

1926

The distance craze was still on. The parts manufacturer were monopolizing most of the magazines. Complete kits were sold in abundance but the sales of factory built receivers were below what they had been in former years. It was a day of pride in one's own ability to construct a radio set, and those who listened to "boughten receivers" were not afforded the same respect as those who had "rolled their own."

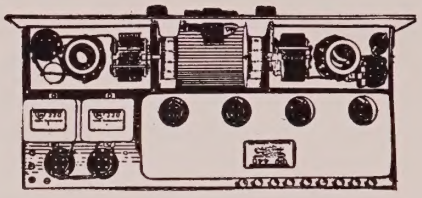
New Cunningham A. C. Tubes

1927

Parts, chargers, B eliminators, ganged condensers and cabinets. Single control was becoming, for the first time, more or less feasible. Cabinets became an important part of the radio dealer's business. The first '26 and '27 tubes sneaked into the market with a bit of hesitation as to how they would be accepted and RCA came out with the Radiola 16 and 17, which began the biggest revolution the industry had known.

1928

Kits were still leading in popularity. Superhets and infradynes were still the hue and cry of set builders. The a-c tube took hold slowly with the latter but found a much more ready market in the factory built job. Receiver sales jumped to over twice the totals obtained during the famous "big year" of 1925. 1928 was the first year in which factory built receivers outnumbered homemade sets. It was also the year in which the dynamic speaker first became almost universally popular, indicating, among other things, that the radio public was beginning to become educated to the value of good tone quality. The appearance of the 1928 receiver, while far from what we consider fashionable today, was radically improved over the receiver of two years before. A-C hum was taken for granted; selectivity and sensitivity were fair in an eight or nine tube set.



Silver-Marshall

S-M

Improved 8-Tube Laboratory Super

1929

1929 heralded the screen grid tube, with greater sensitivity, poorer selectivity, and wide controversy. The so-called band-pass filter arrived, and was proclaimed in one breath and denounced in the next. Power detection and grid bias detection arrived simultaneously, confusing everyone in the business, even engineers. Preselector arrangements designed to give the screen grid job the same selectivity as that which was referred to as "heater-type" (for some reason the heater in the '24 didn't count) saved the screen grid tube from complete disgrace. RCA was manufacturing superheterodynes. So were a few "bootleggers". The rest of the supers were kits. Sets that were bought in January were technically out of date by December.

1930

Engineers began to take things a little easier in 1930. The pentode gave everybody a scare but was warded off. Quality was greatly improved over that which pleased in 1929. Cabinet styles changed just enough to keep

in step with furniture trends. There were several passive attempts to popularize remote control and a couple of high priced receivers succeeded in putting over automatic volume control. The tone control came as near revolutionizing things as anything. (It is said that a mouse can stampede a herd of elephants.) The midget arrived and became popular with the public and notorious with the trade. It was much in need of improvement up until the fall. Some of them still are. RCA finally, after all these years, agreed to let its licensees make superheterodynes. And that simple little fact is now in the process of making T. R. F. receivers as obsolete as crystal detectors, for what reason nobody seems to know.

7-Tube 3-Band All-Wave Superhet Chassis and Speaker

1931 - 1940

The next few years one was confronted with a wide variety of multiple element tubes, midget supers, car radios, automatic record changers and eventually FM and television... and not the faintest hint of transistors and ICs!

HISTORICAL RE-BUFF !!

Tesla - Marconi

Radio historians who are searching for the truth are advised to read the July, 1975 I.E.E.E. SPECTRUM (page 19) titled FORUM. Here they will find interesting documentation relating to basic circuitry patents (tuned circuits). It appears Marconi's Patent No. 627659 and other basic inventions call for further investigation. (Lee Anderson)

TITANIC

A highlight of the recent Conference was the Titanic program -- original movies and slides of great ocean liners. Several members have requested information on the subject particularly after seeing the fine collection of Titanic books in the AWA Museum Library (donated by William Tatum, IV). A rare list of books and other ship material is available as well as information about the Titanic Historical Society by mailing 50¢ to:

7 C'S PRESS, Inc.
P.O. Box-57
Riverside, Conn. 06878

VACUUM TUBE COMMITTEE

The first meeting of the newly formed tube committee was held during the recent Historical Conference. Members present expressed their views and objectives. The group is technically oriented with interest in tube design, development and manufacturing with tube cataloging [designation] as a by-product.

Several members applauded Bro. Pat's "paper" on the development of the metal tube stating it was the first serious historical research on tubes since Tyne's "saga" of the 1940's. Tom Briggs is interested in historical information concerning the smaller and specialized tube companies and other members are writing books on vacuum tube history. Prospective members should write Lauren Peckham giving their technical background and brief description of what they are doing in vacuum tube history: Lauren Peckham
Ormiston Road
Breesport, N.Y. 14816

OLD TIME XMTR CONTEST
Jan. 14-15-22-23
See details elsewhere in Bulletin....

WITH THE COLLECTORS

Lauren A. Peckham
Ormiston Road
Breesport, N.Y. 14816

ERV RASMUSSEN (Redwood City, Ca.) made a trip East recently and shipped home many carton of goodies including a complete 1910 Marconi station.

JACK NELSON (Schenectady, N.Y.) found a couple RCA Mod. 100 speakers, an early crystal set made by GE, AK-40 and an early FADA neutrodyne. Of great interest was a couple experimental 199's designed for a "clip-in" type socket. Apparently this type of design was never put into production by GE !

JOHN WHITING (Dover, N.J.) was able to purchase a complete radio collection during the summer. There were 22 speakers and nice receivers such as AK-10, Pilot Super Wasp, Western El. tubes and a Weagant valve.

CHET WISNER (Dalton, Mass.) has been a collector for only 2 years but he already has some fine equipment including a Grebe CR-5 and the seldom seen Federal 57. More recent additions are a Radiola RS, Grebe Synchrophase and a Crosley Ace 3B.

GUY MARTIN (Azusa, Calif.) continues to have his usual good luck with early wireless items such as a very rare IP-76 and a United Wireless tuner. Other items include a Kennedy 311 and a Standardyne Multivalve.

HARRY STAVERT (Marysville, Wash.) located a horn speaker made by Trimm which was in the original packing box! The same attic yielded a new Gilfillan Model GN-2.

CLARENCE FILLEY (Hamilton, Mont.) finds early gear scarce in Montana but he did locate a Radiola III-A and Baldwin phones. He also found some keys and relays along with a Bunnell sideswiper.

JOHN TSCHOPP (Barrington, Ill.) has a Howard 7-tube battery job and a Scott Metropolitan and AK-55-C.

BOB LESSARD (Columbia Hgts.,Minn.) found a rare Paragon Type III, Clapp-Eastham HR, early Crosley with wood condenser and Moorhead Audion.

JOHN PARSONS (Glenshaw, Pa.) is the lucky owner of a Kennedy 281 and a Western Electric 4-D super...

JOHN ELWOOD, (Lancaster, Calif.) goes in for early keys including a Bunnell KOB camelback, Martin Blue racer and a 1916 Stuart & Moore.

BARNEY WOOTERS (Denver, Colo.) is pleased with a Navy type loose-coupler, a 1st edition of the ARRL Handbook, early QSTs and a Kennedy V. Barney also added several rare DeForest tubes including an early rectifier, VT-21, Type 20 and even a nice spherical Audion...

ARTHUR HARRISON (Columbia, Mo.) found a nice Kennedy XV but now needs a cabinet for the set.

FLOYD LYONS (San Francisco, Calif.) has a complete set of Modern Electrics magazines plus a copy of Radio Theory and Operating by Loomis.

BASIL ABBOTT (Mechanicsville, Va.) found a gold mine at a recent yard sale: he bought home a RA-DA with Moorhead tubes, W.E. horn, UZ-1325 horn and an Apex Super 5 !

GARY WILSON (Swartz Creek, Mich.) and JOHN JOHNSON ended up at the same flea market recently. Now the only problem is to decide who owns the Federal Jr. crystal set that they both bought !

JOE HALSER (Milwaukee, Wisc.) is primarily a E.H. Scott collector but he did add a gigantic Stromberg-Carlson Mod. 744 to his collection. Joe says the set cost $1200 when new and has a beautiful cabinet.

PHIL HOWELL (Nashville, Tenn.) is only 16 years old but he has much interest in broadcast receivers that are battery operated such as the Radiola III with balanced amp., Radiola VIII and a home-brew neutrodyne.

DICK RANSLEY (Sodus, N.Y.) checked in early at the AWA Conference in Canandaigua and found it pays to be early. He picked up a nice Clapp-Eastham "Radion" loose coupler for his collection !

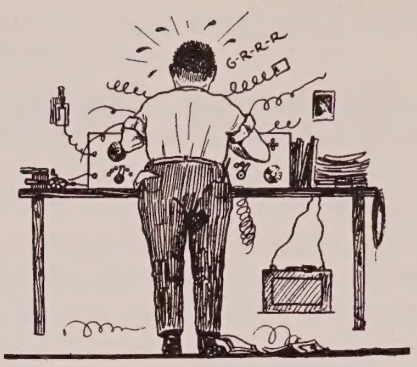
FELLOWS-- remember our early deadline for this column. Send in your material list as soon as you receive the Bulletin to avoid being left out.

HOW MUCH ARE OLD QST MAGAZINES WORTH ??

Not very much unless they are really old according to Phil Sager in a well written article in Oct. 1975 issue of WORLDWIDE NEWS.

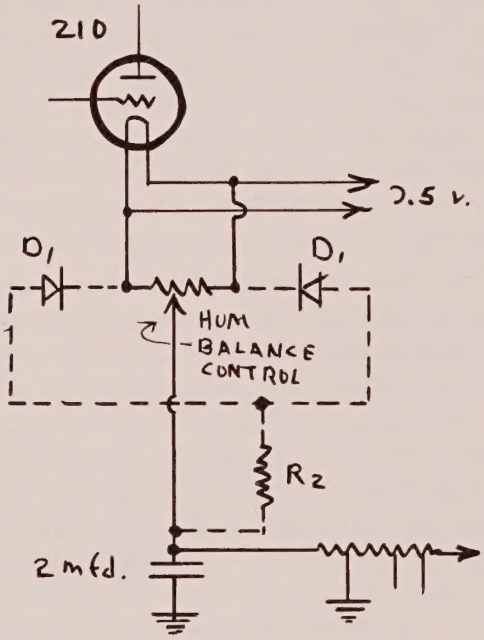
RESTORING OLD EQUIPMENT

How did you SOLVE a problem when restoring an old receiver ? Drop us a note telling how you did it.



A.C. HUM

I have a Radiola 32 which uses a 7 tube (199) version of the 8 tube catacomb and a Mod. 104 loudspeaker/power amplifier/power supply unit (Model AP-832A). I felt the AC hum was excessive and upon investigation learned that the input AF transformer was mounted in such an orientation as to pick up a maximum of induction hum from the power transformer.



D_1 = 200 to 600 v. silicon power rectifier diode.

R_2 = 220 ohm ½w. (may have to be adjusted)

Removing the AFT from the chassis and rotating it removed much of the hum but then the amplifier cover would not fit on. One solution was to replace the original AFT with a smaller modern version which I did (Stancor 15,000 ohms plate to grid).

The set still has 120 cycle hum from the AC on the 210 filament which I believe is caused by non-linearity of the eg-ip curve of the 210 output tube combined with distributed AC voltage on the filament cathode. The hum may be reduced by incorporating the following additional components (dotted lines).

There still remains a great amount of intermodulation distortion noticeable on music. Speech sounds OK. Can anyone tell me if this is normal ? I suspect it is and is due to square law operation of the grid leak detector (?). A partial solution is to change the 5K load resistor activated by the auxiliary volume control switch to 1K. Now the regular volume control must be advanced driving the detector at a higher, more linear level.

Ben Tongue
1 Jake Brown Road
Old Bridge, N.J. 08857

MAGNAVOX

NEED A DECAL ?

About a year ago a Magnavox decal was purchased by A.W.A. for an early Magnavox speaker being restored. The decal was an excact replica of the familiar Magnavox emblem showing a lion's head protruding out of a horn speaker. It was not mentioned in the OTB since we were told that they were no longer available.

A recent letter from Ted Woolner informs us we were wrong -- they are still available from Magnavox Part Centers (Torrance, Calif., Skokie, Ill., Marietta, Ga., Westlake, Ohio and the eastern outlet: 159 E. Union Ave., East Rutherford, New Jersey 07073) at $1.50 each.

Correspondence with their Service Manager R.J. Yeranko also reminded us that Magnavox has a fine historical display of their early products dating from 1911 at their Fort Wayne, Ind. Corporate Building.

WANTED -----

someone to write an article for the OTB on plating old [and new] parts. I find it very expensive to have this done commercially when trying to restore knurled nuts, screws, slider bars, etc. There must be an easy way to nickel-plate at home....W5DPM

MODEL 1928
Balanced - Demodulator Type Heterodyne Receiver

by Art Goodnow, W1DM

The receiver was built at W1DM's Darien Draadloze Fabrieken for use during the 1975 AWA OT QSO Party, to demonstrate that a stable and satisfactory HF receiver could be constructed using components and techniques of the pre-1928 era. (This was prior to the advent of screen-grid tubes, and an adequate short-wave superheterodyne design had not yet emerged simply because of the difficulty of achieving sufficient stable gain at a suitably high intermediate frequency using triode tubes.)

The circuit is basically that of Fig. 217 in "Radio Engineering Principles," Lauer and Brown, McGraw-Hill, 1928. Briefly, the main advantage of the balanced detector, then as now, is its freedom from the type of interference resulting from beats of undesired signals with the desired signal, and also with each other; such audio products are indeed developed by each tube, but their principal components balance out in the push-pull plate connection. By contrast, the beats with the local oscillator (which, unlike the signal input, is fed in-phase to both grids) are in proper phase to add in the transformer and pass on to the output.

The experimental version of the set was mounted on a scrap aluminum baseplate and panel, with a vertical shield separating the oscillator from the detector. A 100:1 gear drive was used for the oscillator tuning condenser C16. The plug-in oscillator coil assemblies include the associated values of C13, 14, and 15. The values shown for the detector grid circuit cover a range from above 80 to below 40 meters. Extension of coverage to the remaining HF bands would be a straight-forward procedure offering no great difficulty.

The detector grids are biased to about 9.5 volts negative, and the tubes draw no plate current with the local oscillator off. C13 and 14 in the oscillator divider are chosen to deliver a local input of 7 volts peak to the detector grids; the grids always operate in the negative voltage region. With this amount of local drive, the plate current is about 2 mA dc per tube. For balanced drive, perfect circuit symmetry would be required. Normally, the stray capacities are not identical (the strays from each side of C2, for example, are significantly different). C1 is provided to compensate for this; it is adjusted for minimum reaction on oscillator plate current as C2 is swung through resonance. At proper adjustment, only a slight flicker in plate current occurs, and no oscillator frequency "pull" whatsoever is discernible. Under this condition, minimum oscillator energy appears in the detector grid tank. Conversely, incoming signals are not coupled to the oscillator; hence even in the presence of extremely strong input signals there is no trace of oscillator frequency pulling.

The only other preliminary adjustment is that of tube gain balance to optimize suppression of spurious beats. A differential grid bias range of about one volt is provided across the ganged potentiometers R3 and 4, developed by the filament current in these resistances and their shunt R5. The optimum bias differential is found by turning off the local oscillator and introducing a pair of signals (or a single amplitude-modulated signal) at the antenna input, of sufficient strength to drive the plate current to about 0.5 mA per tube. The R3/R4 control is adjusted for minimum audio output. With this accomplished, a striking demonstration of the rejection of spurious output may be had by then turning on the local oscillator, the previously faint audio response jumps to a terrific level as normal heterodyne reception takes place.

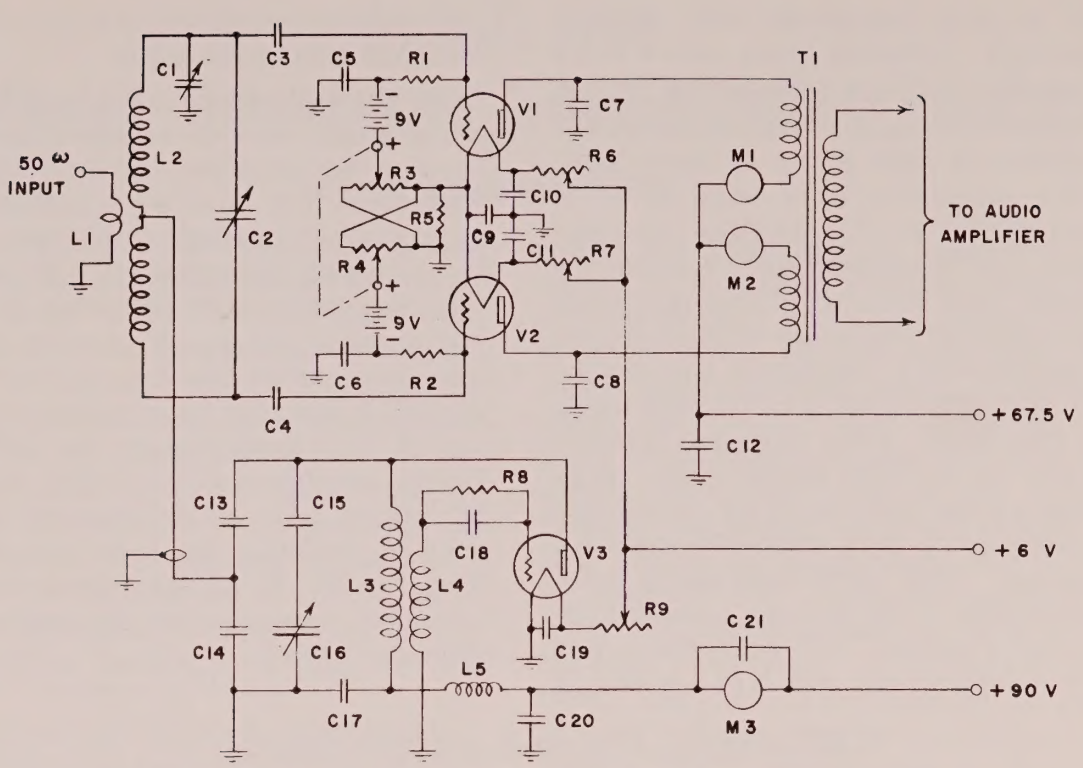
With the addition of a sharp cutoff low-pass audio filter on the detector output, this receiver will make a very satisfactory piece of apparatus for telegraphy reception; it outperforms

some modern equipment with respect to stability, freedom from spurious responses, and low background noise. On the debit side, it of course responds to signals on both sides of zero beat, and its sensitivity is at least 30 or 40 db below that of its familiar contemporary, the regenerative or oscillating detector. Virtually all of the gain must be provided by the audio amplifier; for this preliminary version a Daven 3-stage R-C amplifier strip was used, with two W. E. 102G high-mu triodes followed by a 101D output tube, furnishing a total gain of 64 db. This was not much more than ample for headset reception. With such high audio gain, microphonic tube noises - caused by dropping a pencil, for example - become troublesome; and attempts at loudspeaker reception bring on acoustic feedback howl problems.

Spring-suspension of the front-end tubes would be desirable in a final version to alleviate the microphonics problem. The meters indispensible during experimental work, would not be required permanently. If the tube type specified is unavailable, it can be replaced by others of similar characteristics. Among the filamentary types, the 112A would be a suitable choice; and of the heater types, the 227 or 56. Later versions of the 112A, 227, and 56 having mica disc element bracing would probably be less microphonic than the W. E. tubes. Unfortunately, however, they are not as pretty as the globular types!

PARTS LIST [Circuit on next page]

C1	Hammarlund Jr. Midget, 3-15 uuf	Balance trimmer
C2	Bremer-Tully 13 plate, 20-225 uuf	Detector tuning
C3, 4	Sangamo 250 uuf	Grid blocking
C5, 6	Faradon Model T, 0.006 uf	Grid bypass
C7, 8	Dubilier Micadon Type 501, 0.0025 uf	Plate bypass, RF
C9, 10,11	Faradon Model T, 0.006 uf	Filament bypass
C12	1 uf 200 V paper	Plate bypass, audio
C13	(3.5-4 Mc/s, 100 uuf (7-7.3 Mc/s, 55 uuf	Oscillator divider
C14	(3.5-4 Mc/s, 1000 uuf (7-7.3 Mc/s, 250 uuf	Oscillator divider
C15	(3.5-4 Mc/s, 120 uuf (7-7.3 Mc/s, 33 uuf	Oscillator bandspread
C16	Bremer-Tully 5 plate, 15-90 uuf	Oscillator tuning
C17	Faradon Model T, 0.006 uf	Plate bypass
C18	Faradon Model T, 250 uuf	Oscillator grid
C19	Faradon Model T, 0.006 uf	Filament bypass
C20	Sangamo 0.01 uf	Plate supply isolation
C21	Sangamo 0.01 uf	Meter bypass
L1	1 t. #24 dcc, between halves of L2	Input coupling
L2	24 t. #24 dcc on 1¼" form, halves 0.2" apart	Detector grid
L3	(3.5-4 Mc/s, 19 t. #24 dcc on 1¼" form (7-7.3 Mc/s, 12 t. #24 dcc on 1¼" form	Oscillator tank
L4	(3.5-4 Mc/s, 15 t. #32 sse, 0.1" from L3 (7-7.3 Mc/s, 10 t. #32 sse, 0.1" from L3	Oscillator tickler
L5	2.5 mh	Plate isolation choke
M1, 2, 3	0-10 mA dc	Plate milliammeters
R1, 2	Dubilier Metaleak, 1 meg	Detector gridleak
R3, 4	G. R. Type 301, 12 ohms, ganged	Balancing potent.
R5	0.6 ohm, 28" #16 nichrome, self-supporting coil mounted on R3/R4	Potentiometer shunt
R6, 7	6 ohms 1 A	Filament rheostat
R8	50 K ohms	Oscillator gridleak
R9	6 ohms 1 A	Filament rheostat
T1	12,000 CT to 40,000 ohms	Audio output
V1, 2, 3	W. E. 101D	Tubes



1928 BALANCED-DEMODULATOR TYPE HETERODYNE RECEIVER

Story of

Shure Microphones

A half century of growth and success as a distinguished member of the sound industry is being celebrated this year by Shure Brothers and, as the theme of the celebration, Shure has selected "The 51st Year of Our Commitment to Excellence" to exemplify the company's continuing dedication to providing products and services of the highest quality and reliability.

The commitment was first made in a tiny office in Chicago in 1925 when the Shure Radio Company was started by S. N. Shure, to this day president and chief operating officer of Shure Brothers Incorporated!

In the years since, Shure has earned a worldwide reputation for quality and reliability in microphones, high fidelity components, sound reinforcement systems, and related circuitry products.

As the world's largest manufacturer of microphones, Shure is well represented in critical sound applications ranging from extravaganzas in Las Vegas nightclubs to ultra-quiet recording studios, from mammoth cathedrals to intimate clubs, from meeting rooms to presidential press conferences, and from local police and safety communications systems to worldwide military communications networks. When anyone . . . anywhere . . . wants to be heard, there are now more than 100 models of Shure microphones from which to choose exactly the type capable of handling the situation with utmost quality and dependability. President Gerald Ford took his oath of office before a Shure microphone. President Harry Truman commented on the famous "Dewey Defeats Truman" *Chicago Tribune* flap before a Shure microphone. President Franklin D. Roosevelt held a Shure microphone as he spoke.

Shure phono cartridges . . . hi-fidom's favorite source of sound . . . represent another achievement of a commitment to excellence that never stops.

For 40 Years . . . Just Microphones!

Less than 10 years ago, Shure product involvement in any sound reinforcement installation began and ended with the microphone.

Since then Shure has developed a full line of total communications products: microphone mixers, audio level controllers, reverb-mixer combinations, Audio Master control centers, feedback controllers . . . all developed to solve specific sound reinforcement problems.

It was inevitable that the thrust of this new product activity would lead to an all-Shure vocal amplification system, wherein all components from the microphone through the loudspeakers would carry the Shure name. This milestone was reached when the first Shure Vocal Master Sound System was introduced in 1968.

Microphone Collectors: See Sept., 1975 issue of "Communication News" for full story and pictures of Shure Microphones.

FREE QSTs --- members have left hundreds of QST and CQ magazines at the old barn museum dating from 1940 to 1970. They are FREE to AWA members on a limited basis providing they are picked up -- no mailing !

CONFERENCE PRIZE DONORS

Morgan McMahon, Hasting House and A.R.R.L. donated books which were given away as prizes. In addition, Paul Klipsch donated 300 Montgomery Ward catalog reprints.....
A big THANKS from the Committee !

GOOD READING

IDA
Was a Tramp

AND OTHER REFLECTIONS

Cdr. E. J. Quinby, USN (Ret.)

Exposition Press, 900 So. Oyster Bay Rd. Hicksville, N.Y. 11801

(Price: $10.00 plus 50¢ postage)

This book is now available having just been published -- and it is a beaut !

"*Ida* was a tramp steamer—our home afloat from New York to Singapore and back."

Thus describing the love of his seagoing life, E. J. Quinby launches the reader on a fabulous voyage to the Far East—a voyage that brings him to the shores of Russia during the dark days of the 1917 Revolution and inspires a brilliant account of the fighting along the Trans-Siberian Railroad, and of the refugees *Ida* took aboard at Vladivostok. On the homeward voyage *Ida's* dramatic SOS rescue job in stormy mid-Pacific holds the reader spellbound.

With the leisurely pace and richly variegated language of the true historian, Commander Quinby describes the sights, sounds and smells of exotic ports, gives a detailed account of the "Marconi" scandals and the birth and growth of the infant wireless industry, introducing Marconi, Lee De Forest and young David Sarnoff in their early roles.

On a later voyage, young Quinby takes us on a hair-raising train ride deep into Poland, where a cargo of coffins is transformed into the tools of independence for the beleaguered Poles.

During the years between the world wars, we see the inventions and the development that made the "wireless" industry a giant. World War II finds Commander Quinby afloat again, this time training the young in electronics and electronic weaponry in blimps, destroyers and submarines.

Readers are treated throughout to descriptions of every means of transportation developed in this century—and to marvelous stories about "steam"—the author's enduring passion among ships.

Commander Quinby's grasp of events as they happen and his lucid explanation of the results of those events form no small part of this fascinating historical adventure story. Profusely illustrated with photos of the period, *Ida Was a Tramp* is a genuine find for the history buff, and for the reader who wants substance with his entertainment. *Ida* abounds in both.

THE BERENGARIA EXCHANGE

by Paul Knapp

(Pub. by Dial Press, N.Y.C. 1972)

This book wasn't called to our attention until only recently so may be difficult to obtain. The BERENGARIA is the name of a trans-atlantic luxury liner -- which had a stock EXCHANGE office aboard to handle passenger's stock sales while enroute from Europe to United States.

The story is centered around the fateful week of the Wall Street Crash and is full of true anecdotes, pathos and tragedy as the crack wireless operators endeavored to handle the traffic between the ship and the shore station WSC at Tuckerton (West Creek). A.W.A. member Bob Leech, K1ZZU, was an operator at WSC and is quoted several times in the book. Fascinating reading.....

THE BROADCAST INDUSTRY: An Examination of Major Issues

Edited by Robert Stanley
Paper Text -- $7.95
Hasting House, Publishers
10 East 40th St., New York
New York 10016

Although it would appear the book is written for members in the educational field, lay readers will find it of value if they have an interest in radio/TV management and programming.

Bob Morris and I reviewed the book and agree the first half the most absorbing. If you are (or have been) in the BC field, you'll find it good reading..... B.K.

COLOR PHOTOGRAPHS

AWA photographer Al Crum has taken a series of professional color pictures inside the new AWA Electronic-Communication Museum. Members who wish to have eight (8) of these beautiful pictures (3½ x 5") in a special folder showing various displays in different parts of the building may obtain them at cost for only $4 plus 50¢ mailing. Larger sizes are also available. Write:

Al Crum, 16 Costar St.
Rochester, N.Y. 14608

Good news ! Starting with the next issue of the Bulletin, Jerry Tyne will again have his "Question and Answer" Column. In the meantime, members of the AWA Vacuum Tube Committee will submit articles of interest.

EARLY PENTODE TUBES

by Richard S. Briggs, W1BVL

The following history of pentode tubes covers activity of early development not generally known.* The first pentodes like the Mullard PM 24 were used in Europe during the late 1920's. They gave more amplification per tube in a set, and because royalties on foreign sets were based on the number of tubes, the pentode became popular.

During 1929 Arcturus Radio Company in Newark, N. J. and Champion Radio Works Inc. in Danvers, Mass. were developing the first American pentodes.** The writer was directly involved with the pentode program at Champion. At this time there was sporadic interest by set manufacturers. Most engineers were enthusiastic about the pentode but top managements were cautious; one reason being the severe market crash of 1929.

As far as it is known, the first important demonstration of the pentode tube in the U.S. was given to a group of engineers at a meeting of the Radio Club of America at Columbia University, New York City on January 15, 1930. The pentode was the Champion P701. An A.F. amplifier was built by Champion for this demonstration. It consisted of a phono. pickup and audio stage using a 227 triode, the output of which was fed either to the grids of a pair of type 245 triodes in push pull, or to the grid of the P701 pentode depending which way a switch was thrown. The high power sensitivity of the pentode was shown dramatically. The voltage amplification of the P701 was 6.6 times that of the push-pull 245s. In effect the pentode was equivalent to two audio frequency stages using triodes. This made it practical to use one pentode tube stage immediately following the detector in a set.

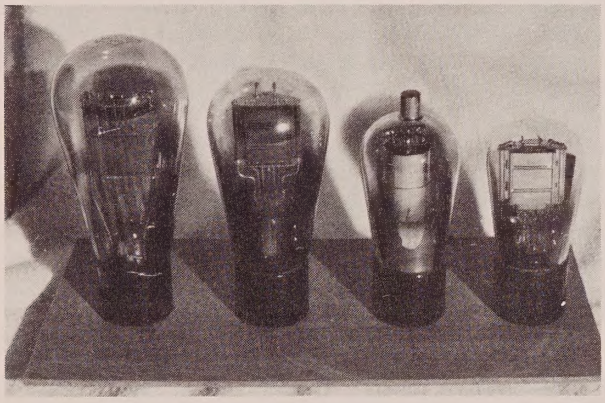
After the demonstration at Columbia University, interest in the pentode increased rapidly. Champion and Arcturus were encouraged to continue their programs. The result of this was the Arcturus PZ and the Champion P703 both being prototypes for the later type 247 or 47. Fig. 1 shows the internal connections for these tubes.

For those not acquainted with pentode construction, the following information is given. The pentode is essentially a screen grid tube with an extra (suppressor) grid placed between the screen grid (G_2) and the plate and is normally connected to R.F. ground and at zero d.c. potential; and in the case of the type 47 it is connected internally to the center of the filament. The purpose of the suppressor grid (G_3) is to keep secondary electrons from the plate from reaching the screen grid (G_2) particularly when the instantaneous plate voltage swings below the fixed G_2 voltage. This property provides more undistorted power output with greater power amplification than that of an equivalent tetrode.

Starting around 1935 beam tetrodes such as the 6L6 were developed by R.C.A. They were essentially pentodes with beam forming plates used instead of a suppressor grid. The grid wires of G_1 and G_2 were aligned to minimize the interception of primary electrons by G_2 and to also enhance the "beam action". The well known 807 was a modification of the 6L6 and a prototype for many other R.F. power tetrodes.

The photograph shows Champion pentodes of the writer's collection. They were developed between 1929 and 1932. From left to right is 1.) the original P701, 2.) the P704 (prototype 47). 3.) the P702 with an indirectly heated cathode and top G_1 connection,

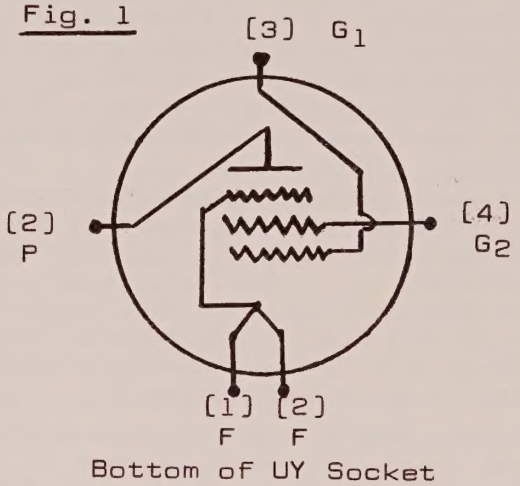
4.) the P730 used in battery operated portable sets and later known as the Type 33. The P703, similar to the P704 in the photo, was a sort of "beam" pentode having the G_1 and G_2 grids aligned. The Champion Company may have missed an opportunity for patent claims of the "beam action" later developed by R.C.A. The P703 required less screen current and voltage than the P704, PZ or 47. However, the P704 design was chosen because the idea of aligned grids was considered impractical due to more exact assembly in production lots. The best design compromise at the time was to use a nonaligned G_2 with respect to G_1 and G_3 and having the direction of winding of G_2 opposite to that of G_1 and G_3. Also the pitch of G_2 was different from the other grids. The net result of this design, though requiring a higher screen current, did provide a fairly uniform field between the grids.



Early in 1931 Champion demonstrated a "home brew" receiver using the P703 at the Atwater Kent plant in Philadelphia. This set was compared to an Atwater Kent model using '45 triodes in the output stage. Mr. Atwater Kent was there to personally evaluate the test. He was immediately sold on the performance of the pentode, and as a result, the PZ and P704 pentodes were used in the first Atwater Kent superheterodyne of 1931. The P703 was replaced by the P704 as mentioned above. Later on, type 47 pentodes were available from R.C.A. and other tube manufacturers.

Early pentodes were found to perform very effectively as R.F. amplifier tubes. The original P701, modified to have a control grid top connection, was used as a R.F. buffer amplifier in a local broadcasting station in 1929. It was an early version of the 802, 803, 804, and RK20 and performed better than the 865 tetrode it replaced. The '47 of course was very popular with amateurs for use in R.F. circuits before a wide variety of pentodes or beam tetrodes became available. ***

Fig. 1



Bottom of UY Socket
Type '47

One tube, the HY69, a "quick heater" version of the 807 made by the Hytron Corporation in 1937, had a thoriated tungsten filament. It was one of the first of its type and was used in police two-way radios. The HY69 was one of a series of Hytron tubes available to amateurs prior to World War II. Two of these tubes in the writer's collection were recently used in his 160 meter rig. After a 35 year rest, they still met the operating specifications. It was found that the HY69s were very nearly as efficient as the modern 6146A beam tetrodes.

* See: "About the Pentode" by Ross A. Hull, QST June '31
See: "Putting the Pentode to Work" by Ross A. Hull, QST June '31

** Pentode development by other U.S. Companies at this time may have been carried out unknown to the writer.

*** See June '31 QST, "Using Pentode Tubes in the Low-Powered Transmitter" W1BVL

As a vacuum tube engineer and ham, Dick Briggs recognized the great potential in pentode tubes for amateur use. This prompted him to write an article in June, 1931 QST. Here he reviews the subject nearly 45 years later. Dick is a member of the newly formed Vacuum Tube Committee.

STOCK MARKET and DEPRESSION

Radio historians frequently refer to the Great Depression as the end of the "Golden Age of Radio" -- having in mind of course the failure of many well-known radio concerns who could not weather the early '30s. Printed on these two pages is an interesting record of 18 manufacturers and their stock value on the New York Stock Exchange -- before the 1929 Crash and in September, 1930.

American Bosch Magneto Corporation, 209,000 shares outstanding, listed on New York Stock Exchange; 1929 high 76½ and low 27; 1930 high 54⅞ in February and low 21 in September; earnings $2.16 in 1926, $2.26 in 1927, $5.02 in 1928, $4.22 in 1929; deficit of $0.10 for first six months of 1930; closing bid on September 30 was 21½.

Arcturus Radio Tube Company, 600,000 shares outstanding, listed on New York Curb; 1929 high 55⅜ and low 7½; 1930 high 23⅞ in March and low 7 in September; deficit of $0.26 in 1927; earnings of $0.31 in 1928 and $0.89 in 1929; closing bid on September 30 was 7⅞.

CeCo Manufacturing Company, 8% stock 97,000 shares outstanding, listed on Chicago Stock Exchange, adjusted prices for 1929 showed a high of 82¾ and a low of 15⅜, for 1930 a high of 19¾ in January and a low of 3¾ in September; adjusted earnings were $2.17 in 1926 and 1927, $5.16 in 1928 and deficit of $1.06 in 1929 after extraordinary changes; closing bid on September 30 was 3¾.

Crosley Radio Corporation, Class A, 543,000 shares outstanding, listed on New York Stock Exchange; adjusted prices for 1929 showed a high of 120⅛ and a low of 15, for 1930 a high of 22 and a low of 10¼ in January; adjusted earnings were $1.05 in 1926, $1.37 in 1927, $6.66 in 1928, and $2.00 in 1929; the first six months of 1930 showed a deficit of $1.84; at a price of 16 its dividends yield 6.8%; closing bid on September 30 was 12½.

De Forest Radio Company, 1,350,000 shares outstanding, listed on New York Curb; prices for 1929 showed a high of 26⅞ and a low of 3, for 1930 a high of 8⅜ in April and a low of 2½ in January; no earnings statements are available aside from a deficit of $0.15 in 1929; closing bid on September 30 was 2⅝.

Dubilier Condenser Corporation, 304,000 shares outstanding, listed on New York Curb; prices for 1929 showed a high of 20 and a low of 4, for 1930 a high of 13⅛ in January, and a low of 3 in September, there was a deficit of $0.40 in 1926 and $0.43 in 1927; earnings of $0.56 in 1928 and no statement for 1929 nor 1930; closing bid on September 30 was 3¼.

Grigsby-Grunow Company, 1,998,000 shares outstanding, listed on New York Stock Exchange; prices for 1929 showed a high of 70 and a low of 14¼, for 1930 a high of 28 in June and a low of 6 in September; adjusted earnings were $0.21 in 1926, $0.56 in 1927, $2.93 in 1928, $0.87 in 1929; closing bid on September 30 was 6.

Hazeltine Corporation, 175,000 shares outstanding, listed on New York Curb; prices for 1929 showed a high of 70¼ and a low of 14¼, for 1930 a high of 35 in May and a low of 17 in September; in 1926 earnings were $0.09, in 1927 the deficit $0.25, in 1928 earnings were $0.91 and in 1929 were $1.38; the first six months of 1930 showed earnings of $1.19; at a price of 27 the dividend yield is 7.4%; closing bid on September 30 was 17¾.

Kolster Radio Corporation, 824,000 shares outstanding, listed on New York Stock Exchange; prices for 1929 showed a high of 78¾ and a low of 3½, for 1930 a high of 8½ in April and a low of 1¾ in January; the indicated earnings were $0.87 in 1927, $0.20 in 1928, and estimated as nil for 1929 and 1930; closing bid on September 30 was 2.

A Decade of Growth for Two-Way Radio

AUTHORIZED TRANSMITTERS IN SAFETY AND SPECIAL SERVICES

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Citizens	2,397,852	2,561,363	2,718,505	2,781,101	2,759,111	2,842,645	3,991,738	3,908,479	3,842,775	4,129,763
Amateur	286,325	292,194	283,412	287,164	290,298	283,021	286,118	284,235	279,505	273,780
Aviation	176,558	169,034	196,723	225,876	230,993	242,165	177,171	180,658	186,448	212,295
Industrial	1,315,498	1,400,231	1,551,410	1,688,744	1,858,392	2,018,247	1,488,626	1,829,659	2,051,034	2,303,063
Public Safety	544,732	597,288	639,555	684,456	732,093	778,469	1,539,271	2,026,719	2,318,373	2,668,134
Marine	138,788	149,629	174,454	199,238	226,183	250,636	234,343	256,453	250,459	257,047
Transportation	416,387	446,214	489,835	522,381	551,567	573,822	1,140,955	1,357,518	1,451,449	1,643,729
Total	5,276,140	5,615,953	6,053,894	6,388,960	6,648,637	6,989,000	8,858,222	9,843,720	10,380,043	11,487,811

Source: Federal Communications Commission

National Union Radio Corporation, 419,000 shares outstanding, listed on New York Curb; prices during 1929 showed a high of 43¼ and a low of 3⅝, for 1930 a high of 10¼ in April and a low of 3 in May; the indicated earnings were $3.00 in 1928, a deficit of $5.08 in 1929 and estimated as nil and 1930; closing bid on September 30 was 3¾.

Polymet Manufacturing Corporation, 200,000 shares outstanding, listed on New York Curb; during 1929 prices reached a high of 41½ and a low of 11⅞ and during 1930 a high of 18¾ in April and a low of 3 in September; earnings were $2.89 in 1929; closing bid on September 30 was 3.

Radio Corporation of America, 13,161,000 shares outstanding, listed on New York Stock Exchange; prices reached a high of 114¾ during 1929 and a low of 26, during 1930 the high was 69⅜ in April and low 26 in September; adjusted earnings were $0.57 in 1926, $1.23 in 1927, $3.20 in 1928, $1.58 in 1929, with a deficit of $0.17 for the first six months of 1930; closing bid on September 30 was 28⅛.

Sparks-Withington Company, 685,000 shares outstanding, listed on New York Stock Exchange; the high during 1929 was 73 and the low 13⅛, during 1930 the high was 30½ in April and the low 13⅛ in January; adjusted earnings were $0.28 in 1926, $1.82 in 1927, $3.64 in 1928, estimated at $2.65 for 1929; closing bid on September 30 was 15⅞.

Stewart-Warner Corporation, 1,299,000 shares outstanding, listed on New York Stock Exchange; the adjusted price during 1929 was high at 72⅝ and low at 28⅝, during 1930 the high was 47 in April and the low 19¼ in June; adjusted earnings were $3.89 in 1926, $3.99 in 1927, $5.97 in 1928, $5.26 in 1929, and as estimated at $2.25 for 1930; the stock yields 8% in dividends at a price of 25; closing bid on September 30 was 20¼.

Stromberg-Carlson Telephone Manufacturing Company, 268,000 shares outstanding, listed on New York Curb; 1929 high was 35⅛ and low 15, 1930 high was 30 in April and low 26 in September; earnings were $3.63 in 1926, $1.25 in 1927, $2.16 in 1928, $3.75 in 1929; at a price of 29 it pays dividends of 4.3%; the closing bid on September 30 was 26¼.

U. S. Radio and Television Company, 143,000 shares outstanding, listed on Chicago Stock Exchange; 1929 high was 141 and low 5½, 1930 high 29½ in May and 8 in January; the earnings of predecessor companies were $1.34 in 1926, deficit of $0.49 in 1927, and earnings of $1.24 for ten months of 1928, and $0.04 for 1929; the closing bid on September 30 was 17½.

Utah Radio Products Company, 393,000 shares outstanding, listed on Chicago Stock Exchange; 1929 high was 56 and low 4, 1930 high was 10⅞ in May and low 4¼ in January; adjusted earnings of predecessor companies for 1926 were $0.93, for nine months of 1927 were $0.73, for eleven months of 1928 were $2.47, and as estimated for 1929 were $2.42; the closing bid on September 27 was 5¾.

Zenith Radio Corporation, 400,000 shares outstanding, listed on New York Stock Exchange; 1929 high was 52¾ and a low 6½; 1930 high was 16¾ in June and low 5⅝ in January; adjusted earnings for 1926 were $0.29, for 1927 were $1.58, and for 1928 were $2.77, with a deficit of $0.65 for 1929; the closing bid on September 30 was 6.

TOP PROGRAMMING AT 1975 A.W.A. CONFERENCE

Al Grebe's grandson, "Chip" Meier (center) steals the program as he tells about his grandfather and the Grebe Company. Moderator Ralph Williams is at left with his father holding one of the several huge reference/photo Grebe books.

A.W.A. HISTORICAL MUSEUM

ACADEMY MUSEUM
East Bloomfield, N.Y.

Closed during the winter months. Museum hours for 1976 will appear in the March Old Timers Bulletin.

1876 - 1976

TELEPHONE CENTENNIAL

A.W.A. Museum will celebrate the Telephone Centennial next year with several early telephone displays under the direction of Harry Lott (W2ARX). Harry is former Telephone Historian for Stromberg Carlson and a member of Telephone Pioneers. Ross Smith (C.T.S.) and Richard Walters (Seneca-Gorham Tele. Co.) will assist.

SILENT KEYS

FRANK ATLEE - K4PI
80 years, Oct.14, St. Petersburg,Fla. Former A-K employee. Frank contributed much to Atwater-Kent history.

E. B. DuVall,

83 years, Mitchellville, Md. Ted was a Charter Member of A.W.A. and active in many of the Association's functions. As an early amateur -- his call 3DW was well known in the old spark days. He was a one time employee of NRL and NESCO.

GEORGE GURNEY - PIONEER MARCONI OPERATOR

Veteran Marconi with over 50 years of service. Last stationed at VBH Kingston, Ontario. Assisted A.W.A. in making several film shows.

SHORTWAVE CONVERTERS

Ivan Loucks recently gave AWA Museum a WORKRITE shortwave converter. Much interest was shown in this little device common between 1928 and 1932. Ralph Williams: "How about a SW Converter Class in next year's Old Gear Contest?"

Do you know...?

that during WWII one could not purchase tubes in England with plate dissipation exceeding 10 watts without a permit from the Post Office Department ?

Possible reason:to forestall illicit transmissions to the enemy.

(Copy from Tudor Ree's News-Sheet)

MACHINED PARTS FOR YOUR RESTORATION PROJECT

I have a fully equipped machine shop and can make hard-to-find parts for most early receivers and transmitters: bronze arms for Radiola I & V, crystal detectors such as for De Forest D-7 and D-10 sets, A-K binding posts, pans for AK breadboards, brass audion sockets, metal covers for Radiola V, VI, etc.

I prefer to work to a similar part and not to a sketch. Will trade work for old radio parts or sets. Write for information: Bob Robbins
253 Standish Road
Merion Station, Penna. 19066

COLLECTING NOW BIG BUSINESS

15 years ago collecting early radio equipment was a hobby. Today it is big business. Old sets that once were junked are now bringing big money. As in other collecting hobbies, business men (or their agents !) have moved into the radio field and are now buying for future turnover or for a profitable foreign market.

They seldom sell or swap and never display their equipment at amateur or historical "meets".....

---NOTICE---

BULLETIN MAILING

Members who wish to have their BULLETIN as soon as it is printed may by paying an additional-al handling charge and the cost of 1st Class mailing.

Starting January 1, 1976 this service will be an annual cost of $1.50 or total membership/ dues of $6.50

A.W.A. BADGES

The large orange badges worn by members at radio meets are again available. The badge has a large plastic window and insert which the wearer writes his name and other identification. A masthead and old radio call letters surround the opening.

Send $1 to:

Lincoln Cundall
69 Boulevard Parkway
Rochester, N.Y. 14612

RECENT RADIO and ENTERTAINER OBITUARIES

Thornton Fisher, 87, Dies; Pioneer Radio Announcer

Thornton Fisher, 87, who became the second paid commerical radio broadcaster in the country after an earlier career as a sports cartoonist and feature writer, died Wednesday at his home on Connecticut Avenue.

In 1923, Fisher began his broadcasting career with NBC in New York City on WEAF. One of his most popular radio features was the Dramatic Highspot of Sports — a production using a Broadway staff that recreated exciting moments in sports.

Another of his New York-based productions was Pictures on the Air. In 1925, New York Mayor John F. Hylan presented Fisher a cup for his extra ordinary radio services.

Fisher previously had gained prominence as a sports cartoonist at the old New York Evening World. He also wrote feature articles at that time, and later worked briefy for The Star.

During his broadcasting career, Fisher reported from Europe and was appointed an official U.S. emissary to an International Radio Convention held in Europe. He had lived in Washington for the last 15 years.

WILMER BARROW OF SPERRY DEAD

Ex-Research Chief, 71, Noted for Short-Wave Work

Dr. Wilmer Lanier Barrow, who retired in 1970 as vice president for research and development of the Sperry Gyroscope Company, died Friday in Tuftonboro, N. H., at the age of 71. He lived in Sarasota, Fla., and was a summer resident of Wolfeboro, N. H.

Dr. Barrow was noted for research on short waves, microwaves, waveguides, radiators, fire-control systems, air-navigation systems, guided missiles and other military systems.

During World War II, Dr. Barrow directed fire control for Sperry and was the company's armament engineer. He received the Presidential Certificate of Merit in 1948.

GLENN E. RIGGS DIES; A RADIO ANNOUNCER

Glenn E. Riggs, a former network radio announcer in New York whose career spanned over 47 years, died Friday at his home in Malaga, Spain. He was 68 years old and had retired in 1972.

Mr. Riggs began his career in 1925 on KDKA in Pittsburgh, the country's first radio station, where he became the chief announcer. In 1930 he originated a program called "Morning Parade."

He left KDKA in 1938 to join the National Broadcasting Company.

Vincent Lopez, Dies at 80

Durable Maestro and Pianist Made 'Nola' His Trademark

By ALDEN WHITMAN

Vincent Lopez, the orchestra leader whose popularity in person, on the radio and on television lasted more than half a century, died yesterday in the Villa Maria, a nursing home in North Miami, Fla. He was 80 years old.

Mr. Lopez, whose home was in North Miami Beach, had been ill since he appeared for a three-week engagement here last May. He suffered a stroke three weeks ago and entered the Parkway Hospital in North Miami Beach. He was taken to the nursing home two days ago.

"Hello, everybody — Lopez speaking."

These words, first uttered Nov. 27, 1921, into a microphone in a makeshift studio of radio station WJZ in Newark, became the most enduring of any major American bandleader's signatures. For more than 45 years they identified Vincent Joseph Lopez to millions who heard him on radio, saw him on television, witnessed him in vaudeville or danced to his smooth rhythms in hotels and nightclubs around the world.

In these years he also became an institution in New York's night life. From 1941, to 1966, the bandleader and pianist played at the Hotel Taft's Grill Room, where he managed to confer on that large, low-ceiling, oak-panel room the atmosphere of the great days of name bands.

Previously at Pennsylvania

Previously, he had been the headliner at the old Pennsylvania Hotel Grill, where he got his hotel start in 1921; the Blue Room of the Lincoln; the Astor Grill, and the St. Regis Roof Garden. In addition, he had two clubs, both called the Casa Lopez; one burned down, and the other failed for lack of sumptuousness and patronage.

Phillips H. Lord Is Dead at 73; Created 'Gangbusters' on Radio

Phillips H. Lord, the creator of "Gangbusters," "Mr. District Attorney," "Counterspy," and many other major shows of radio of the nineteen-thirties and forties, died yesterday at Ellsworth, Me., where he had a summer home. He was 73 years old.

"Gangbusters," which first went on the air in 1936, was a hit for more than 12 years. It was full of roaring-car, rat-a-tat machine-gun imagery based on true stories from the files of the Federal Bureau of Investigation. For that, Mr. Lord had the cooperation of J. Edgar Hoover, the F.B.I. director, himself.

'Mr. District Attorney'

"Mr. District Attorney," a 1939 creation, also enjoyed a long run. It, too, was based on true stories, most of them from the office of the then New York District Attorney, Thomas E. Dewey, who gave his cooperation somewhat reluctantly, according to contemporaary accounts.

Mr. Lord loved true stories and found that his audiences did, too. "We the People," was a weekly show that brought people from all over the world into a studio to tell their stories in their own words.

Alfred Loomis, radar pioneer, is dead at 87

Alfred L. Loomis, a pioneer in the early development of radar, died Monday at his East Hampton home at the age of 87.

A retired lawyer, physicist and financier. Mr. Loomis had been instrumental in establishing what would become the Massachusetts Institute of Technology's radiation laboratory, where much basic radar work was done.

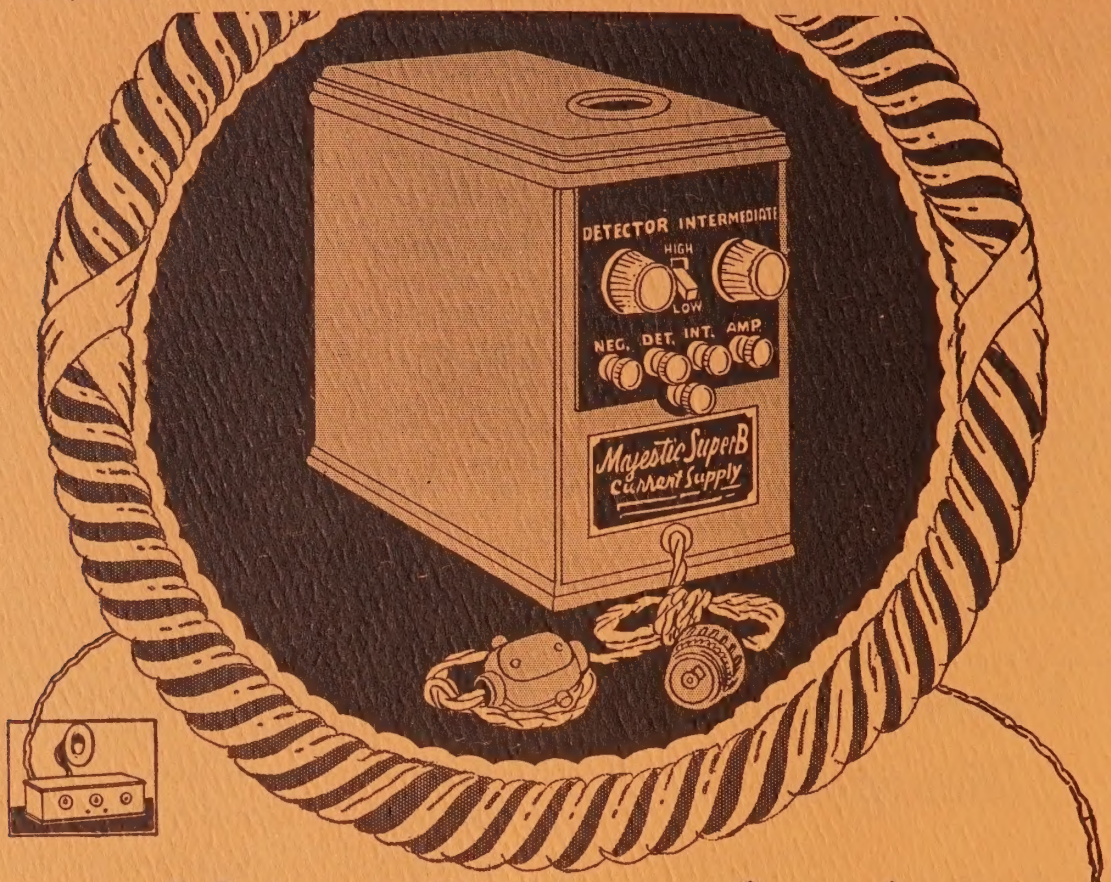
Mr. Loomis was chairman of the Microwave Committee of the National Defense Research Committee during World War II. In 1940, a British scientific team brought a magnetron to the U.S. for the Microwave Committee to study. A magnetron was the basis of workable radar equipment.

He was a member of the National Defense Research Committee during the 1940s, and received a Medal for Merit from the United States in 1948.

In 1928, Mr. Loomis founded Loomis Laboratories in Tuxedo Park, N.Y. where he worked with R. W. Wood on development of ultrasonic waves. He later did work on brain waves, helping to develop the first practical encephalograph.

MAJESTIC "B" ELIMINATOR

Members have requested information and the circuit of this popular "B" eliminator of the mid-20's. Other than the BH rectifier tube, most components can be readily replaced.



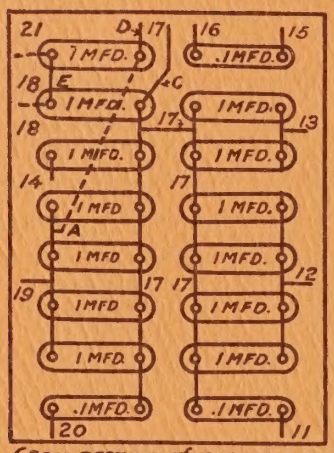
Majestic "B" Current Supply

delivers pure direct current-From your light socket

Majestic Standard — B
Capacity seven tubes or six plus one power tube. 45 milliamperes at 135 volts.

Majestic Super—B
Capacity 1 to 12 tubes, including the use of power tubes, 45 mils at 150 volts.

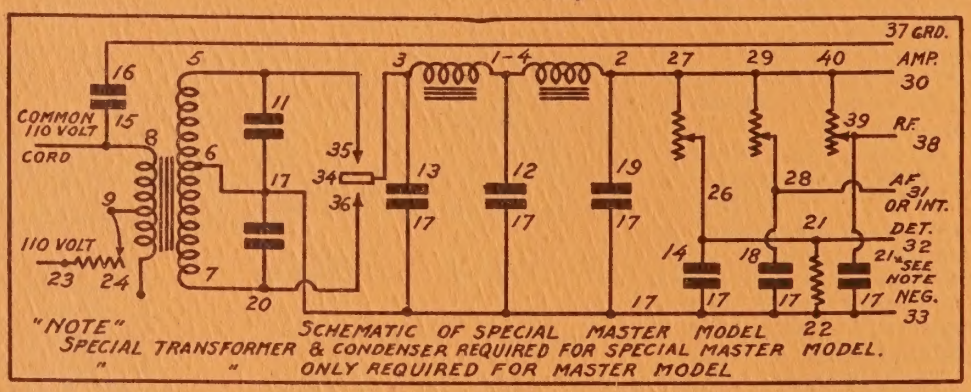
Majestic Master—B
For Radiola 25, 28 and 30 and Super heterodynes. Operates all power tubes. Rating 60 mils. at 150 volts.



CROSS SECTION OF CONDENSER BANK.
1-ABOVE CONNECTIONS CONNECT TO OTHER APPARATUS ACCORDING TO NUMBER DESIGNATION.
2- IN SPECIAL MASTER CONDENSER STRAP "A"-"B" IS NOT SHOWN OR USED. LEAD "C" IS CONNECTED TO LEAD "D". LEAD "E" IS REMOVED AND WIRING TO THESE TWO UNITS IS THEN MADE AS SHOWN BY DOTTED WIRING "18 & 21".
3 IN ALL OTHER MODELS USE STRAP "A"-"B" AND ALL WIRING SHOWN AS SOLID. (NOT DOTTED).

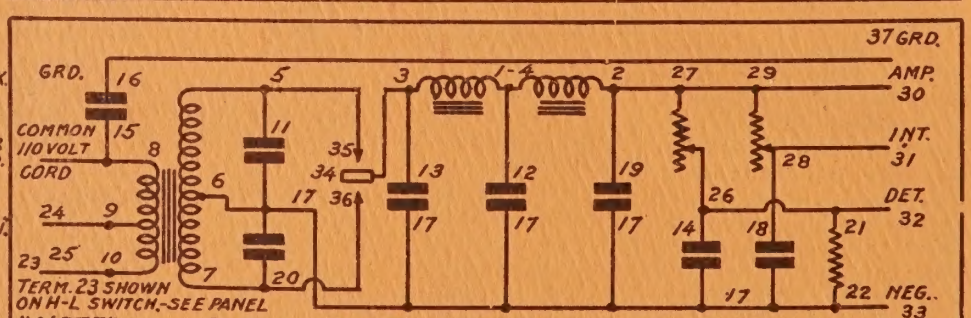
"NOTE"

THE WIRING ON CONDENSER BANK AS SHOWN ON CROSS SECTION VIEW IS ALL CONCEALED WITHIN THE BANK



"NOTE"
SPECIAL TRANSFORMER & CONDENSER REQUIRED FOR SPECIAL MASTER MODEL.
" " ONLY REQUIRED FOR MASTER MODEL

SCHEMATIC OF SPECIAL MASTER MODEL 22



"NOTE"
FOR MASTER MODEL, WIRE AS ABOVE, EXCEPT CONNECTIONS 9-10-24 & 25. WIRE AS FOR SPECIAL MASTER SHOWN ABOVE.

SC SCHEMATIC OF STANDARD & SUPER & MASTER MODELS (SEE NOTE)